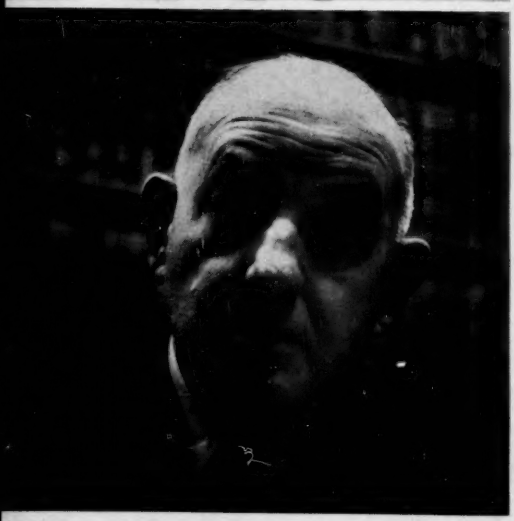
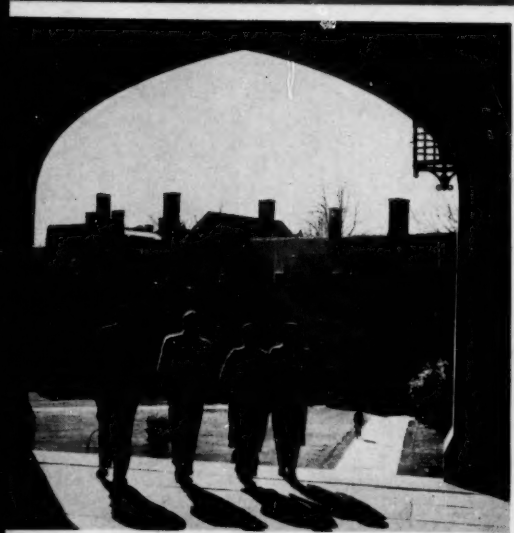


Chemical Week

January 14, 1958

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▶ Chemical manpower recruiters say they need more cooperation from colleges p. 24

TV can help you find a willing manufacturer to put your invention on the market p. 68

▶ Metallurgical Resources' Sill: looking for pay dirt in low-grade cobalt ores p. 56

Polyethylene's still tops but other materials are fast moving into plastic piping p. 76



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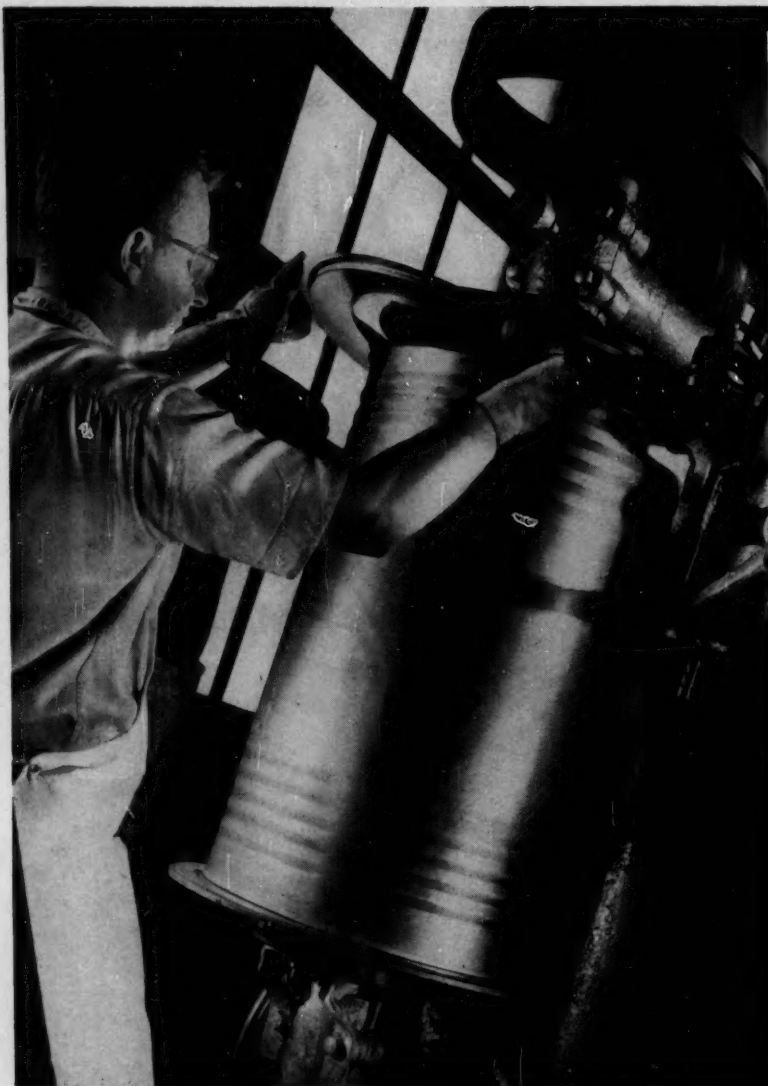
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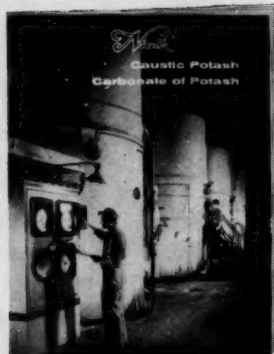
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January 14, 1956

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Chemical Week

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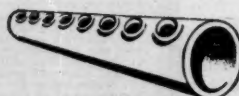
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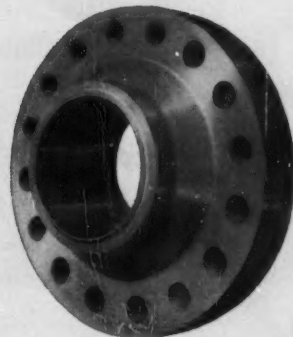
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OPINION

New Editorial Responsibilities

We want to share with **CHEMICAL WEEK** readers the news of some important changes on the editorial staff of this publication. Howard C. E. Johnson, who has been your managing editor ever since *CW* became a McGraw-Hill publication in 1950, has just been made executive editor, following the recent resignation of former editor, W. Alec Jordan. He will be assisted in his increased responsibilities by two newly appointed associate managing editors: Ralph R. Schulz, who has been research editor since 1953; and Edward T. Thompson, former news and economics editor of *Chemical Engineering*. Meanwhile, editors Donald P. Burke and Anthony J. Piombino assume broader responsibilities as associate editors for Technology and Marketing, respectively. These promotions are all part of our plans for the continued growth and development of **CHEMICAL WEEK's** unique services to the management of the chemical process industries.

WALLACE F. TRAENDLY, Publisher

SIDNEY D. KIRKPATRICK, Editorial Director

More Advantages

TO THE EDITOR: We were very interested to read your article on leather (*Dec. 10, '55*). We would, however, like to make one correction in your reference to Dow Corning Corp. Our product for leather is Sylflex and not Silflex. We might also add there are many additional advantages for Sylflex-tanned leather besides water resistance. Shoes constructed with Sylflex-tanned leather are also resistant to perspiration and many chemicals. They do not curl and crack after prolonged wear, and are soft and pliable when new, which eliminates any break-in period . . .

R. E. VIDAL

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International Astronomical Society, annual meeting, including sessions on rocket propulsion, Hotel Astor, New York, Jan. 23-26.

National Water Resources Conference, Chamber of Commerce of the U.S., St. Louis, Jan. 24-25.

Assn. of American Soap and Glycerine Producers, annual convention, Waldorf-Astoria, New York, Jan. 25-27.

American Society for Engineering Education, College-Industry Conference of Relations with Industry Division, Marquette University, Milwaukee, Jan. 26.

Chemical and Allied Products Buyers Group of National Assn. of Purchasing Agents, Midwestern meeting, Palmer House, Chicago, Jan. 24; Eastern meeting, Commodore Hotel, New York, Jan. 31.

Chemical Market Research Assn., aromatic chemicals meeting, Webster Hall, Pittsburgh, Jan. 31-Feb. 1.

American Coke & Coal Chemicals Institute, Western regional meeting, Drake Hotel, Chicago, Feb. 2.

Synthetic Organic Chemical Manufacturers Assn., luncheon, Palm Terrace Suite, Hotel Roosevelt, New York, Feb. 7.

American Water Works Assn., Lincoln Hotel, Indianapolis, Feb. 8-10; Essex House, Newark, Feb. 14.

Technical Assn. of Pulp and Paper Industry, annual meeting, Commodore Hotel, New York, Feb. 20-23.

American Institute of Chemical Engineers, Statler Hotel, Los Angeles, Feb. 26-29.

CW welcomes expressions of opinion from readers. The only requirements: that they be pertinent as brief as possible.

Address all correspondence to: H. C. E. Johnson, Chemical Week, 330 W. 42nd St., New York 36, N.Y.

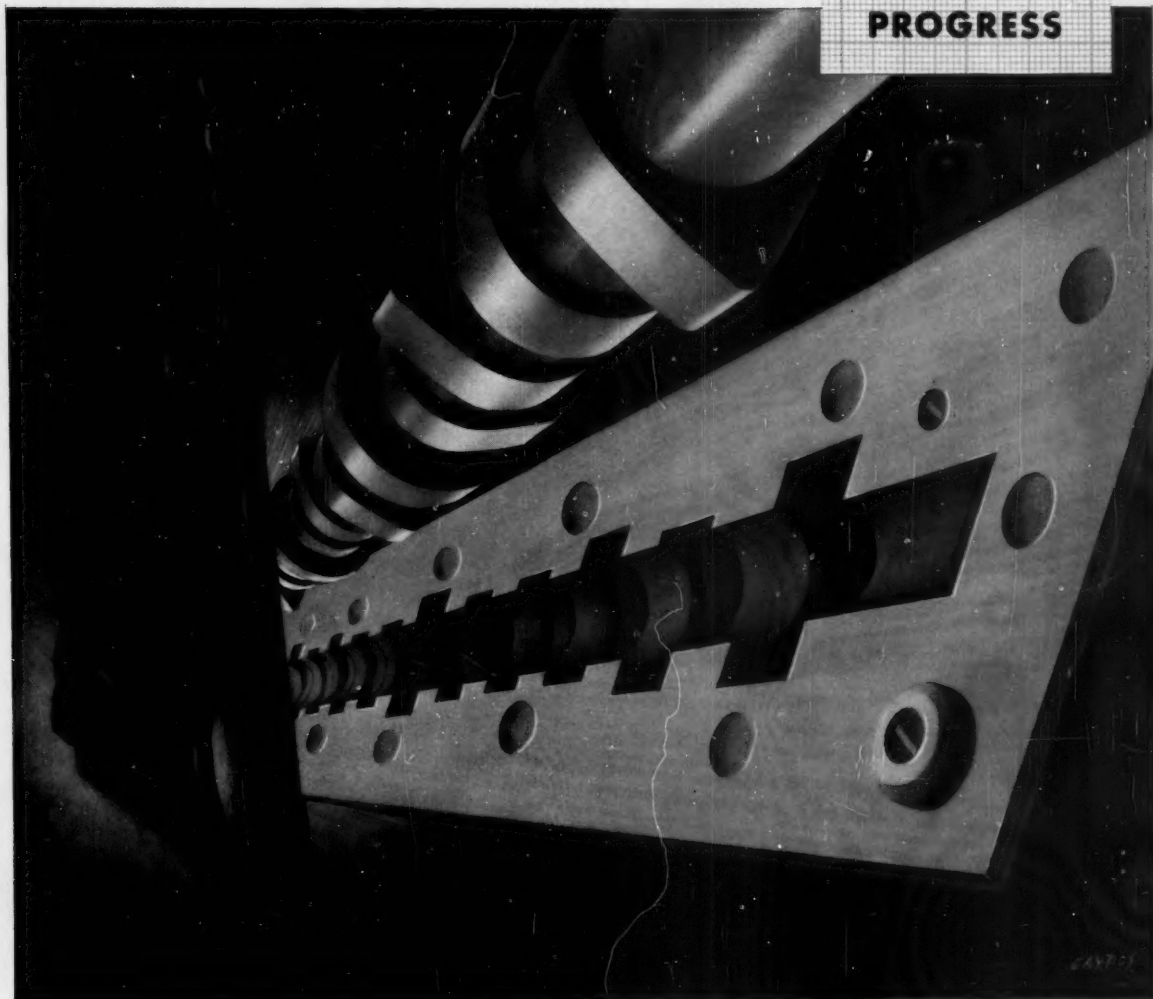
Q. Could chemical science help make possible the incredibly thin sand molds required by the new shell-molding process?

A. RESINS THAT HATCH CASTINGS FROM WAFER-THIN SHELLS

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Chemical Week • January 14, 1956

Business

Newsletter

CHEMICAL WEEK
January 14, 1956

New fuel for political fires is expected this week as the report on sale to Goodrich-Gulf of the Institute, W. Va., synthetic rubber plant goes to Congress. At issue: whether Administration policy favors big business, promotes monopoly. Attorney General Brownell will dodge having to rule on whether a sale that gives 25% of the nation's synthetic rubber capacity to a single producer promotes monopoly. Instead, he'll point out that by the time other projected rubber expansion comes on line, Goodrich-Gulf's share of capacity will be down to about 17%.

Other expansions—of a less controversial nature—continue to make news. Materials involved: industrial gases, ammonia, methanol, silicones.

- Air Reduction will spend \$16 million to increase its production of liquid and gaseous oxygen, nitrogen and inert gases. Involved: new plants at Chicago and Alton, Ill., and at Calvert City, Ky., and additional capacity at Butler, Pa., and Riverton, N.J.
- The Texas Co. plans a 300-tons/day ammonia plant on the Gulf Crescent—probably in Louisiana.
- Rohm & Haas plans to expand its Houston, Tex., ammonia and methanol production. Reported cost: \$15-20 million.
- Union Carbide will come in early this year with a \$1-million increase in silicone capacity at Longreach, W. Va. The plant will be operated by the company's newly formed Silicones Division, which will take over the silicone development, manufacture and sales activities formerly handled by Carbide's Linde division.

Another silicone maker has acquired a new plant site: General Electric's chemical division will use a Watervliet, N.Y., location in expanding its operations.

Surprise wage boosts gave some Orange, Tex., and Alloy, W. Va., workers a belated Christmas present.

Employees of Carbide's Electromet plant at Alloy were told that they're to get a 5¢/hour pay boost, over and above the previously negotiated 7¢ rise that goes into effect next July.

At Orange, Du Pont upped basic wage rates by 4%, raised shift premiums, and added Washington's birthday to the list of paid holidays.

The increases will snowball. In both cases, plant wage levels are considered highest in the community—thus giving workers in nearby plants new targets for future bargaining.

Olin Mathieson will broaden its overseas operations. The company is about to establish a British subsidiary, extending the product lines it offers in Great Britain, where its E. R. Squibb Division currently operates. There's no decision yet, though, on exactly what products the new company will market.

A broadened stock ownership is the purpose of a five-for-one stock split just approved by U. S. Gypsum stockholders. The company's common has been selling for about \$300 a share.

And further gains should be ahead. For the first 11 months of 1955, sales were up 19%; net income, 23%.

Business

Newsletter

(Continued)

But not faring so well are holders of two series of Cutter Laboratories stock. The company will skip normal last-quarter dividends because of losses caused by the polio vaccine situation.

Company-wide welfare and pension plans may someday be the rule, not the exception, in the chemical industry. An agreement negotiated between Monsanto and union representatives from 14 plants may show the way.

Representatives of three international unions will meet in St. Louis next week to check over the agreement. If, as expected, it gets their approval, the okay of locals at the 14 plants is likely to be little more than a formality.

If you're looking for a petrochemical plant site, you may want to get a new research study made by the Midwest Research Institute for the Kansas State Industrial Development Commission.

Highlight: a rundown of refineries and natural gasoline plants, listing production and potential output of such building blocks as propane, butane, hydrogen, various aromatics.

Getting its licks in early in this year's atomic energy investigation is the AFL-CIO Oil Chemical & Atomic Workers. Its 10-point program—submitted this week to the Joint Congressional Committee on Atomic Energy—advocates government science scholarships, financed, perhaps, by charging license fees for government atomic energy patents.

Industry, too, will have a forum. The Manufacturing Chemists' Assn. is asking member companies for information on their atomic programs, for inclusion in the McKinney panel report—an over-all industrial rundown of the potential of commercial atomic progress.

It's this report that's sure to start a controversy, for it will score present Atomic Energy Commission policies on industrializing the atom as unduly restrictive.

The Food & Drug Administration has made its first seizure under the Miller Pesticide law. Involved: two carloads of lettuce that contained the insecticide endrin, a material not permitted by FDA regulation to be used on this crop.

The Supreme Court this Monday turned down Interhandel's appeal of the dismissal of its suit contesting U.S. government ownership of General Aniline & Film. The court, without issuing a written opinion, upheld lower court action, which threw out the suit on grounds that Interhandel did not supply the documents needed to determine whether or not its ownership of GAF stock was really only a cloak for the German I. G. Farben interests. If it was not, then the U.S. had no right to seize the property back in 1941. But Interhandel has one more chance—if it can produce the papers within six months, trial of the case will proceed.

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BUSINESS & INDUSTRY . . .

Chafing at Old Contracts

Another private antitrust suit has been filed in the attempt to shake Sterling Drug Co.'s hold on the Bayer tradename and on various other trademark and product rights that Sterling got some 30 years ago from the former chemical cartel, I. G. Farben.

The stakes: the big U.S. market for a number of much-used Bayer drugs such as Atabrine, Luminal, Veronal and Zephiran.

Earlier, a pair of suits were filed in U.S. District Court at Newark by Farbenfabriken Bayer, asking that Sterling either (a) pay royalties to the German firm in fulfillment of the 1923 and 1926 contracts, or (b) stand aside and let Farbenfabriken Bayer and Schenley Industries carry out their 1949 agreement whereby Schenley's two pharmaceutical subsidiaries—Schenley Laboratories and Norex Laboratories—would manufacture and sell Bayer products in the U.S. (*CW*, Oct. 15, '55, p. 16).

New Thrust: In a new thrust at the same defendant, Schenley Industries—headed by go-getter Lewis Rosenstiel—is bringing suit in the same court, accusing Sterling of illegal re-

straint of trade. Schenley's charges:

- That Sterling's hold on those trademark and product rights is unlawful, having been gained through contracts that were found to be in violation of U.S. antitrust laws (*CW*, Nov. 19, '55 p. 12).

- That Sterling has been using those rights to bar shipment of Bayer chemicals to the U.S. and to prevent sale of Bayer products in the U.S., thus preventing Schenley from carrying out its 1949 agreement.

"As a result of the conspiracies, monopolization and illegal acts of the defendants," Schenley's complaint declares, Farbenfabriken Bayer and Schenley "have been unable to make the contribution to the health of the American public that they would otherwise have been able to make, or to give to the public the advantages of a competitive market."

Triple Damages Asked: Schenley is asking an injunction to halt the alleged restraint, an accounting of damages suffered by Schenley through loss of prospective sales, and judgment for three times the amount of damages. So far, Sterling is keeping mum.

Meanwhile, the court is still considering a motion to transfer the two Bayer-vs.-Sterling suits to the federal court in New York City, where the government had filed its 1941 antitrust suit that led to the consent judgment stamping the 1923 and '26 contracts as illegal.

Fete and Manpower

Next Tuesday the entire nation—in fact the world—will begin celebrating a universal man's birthday.

And just as Ben Franklin in his time inspired youngsters to follow scientific careers, so will he again in coming months.

For, as an important adjunct to the 250th international Franklin anniversary fete, 38 scientific and engineering societies, 3 companies (among them Sun Oil), 57 science museums, and several advertising and publishing groups have devised a scheme to help relieve scientific-manpower shortages.

Discussing the plan, C. L. Jordan, anniversary celebration chairman, says: "Franklin was a pioneer in recommending the teaching of technical subjects in schools and colleges. We could pay no higher tribute to him than by influencing young men and women to follow technology careers all over the world."

Simple Plan: Actually the plan is simple. Sun Oil, for example, has printed 250,000 copies of an illustrated booklet titled, "Should Your Child Choose a Career in Science?" Parents, students, and even teachers will be picking up copies of it on their next visits to their local museums.

In addition, Franklin Institute itself will be flooding the country with literature—for example, "Challenging Opportunities for Students in Engineering, Science and Technology", "The Franklin Legacy in Modern America", and "Health Careers, Challenge and Opportunity."

The big hope: to reach several hundred million people through more than 300 articles and books already being published in 27 languages for the anniversary.



SCHENLEY'S ROSENSTIEL: In new lawsuit, a bid to open U.S. market.

To Keep Clear of Claims: Disclaimers?

Is there a way to stem the tide of product liability lawsuits?

One device now being tried is use of a broad disclaimer or denial of responsibility for any harmful side effects of the product in question. For example, the rather sweeping notice on the label of a soil fumigant solution declares that neither the manufacturer—Stauffer Chemical—nor the seller “shall be held responsible for any personal injury or property damage or other type of loss resulting to the buyer or to any other person from the handling, storage or use of this material whether or not in accordance with directions.”

“The buyer,” this notice winds up, “assumes all risk and liability resulting from such handling, storage or use and accepts and uses this material on these conditions.”

Will It Stick? Whether this kind of a notice would hold up in court as a complete defense in a product liability case is pretty much a matter of conjecture. While the general trend has been to pin more and more responsibility on manufacturers, there also seems to be a willingness on the part of judges—if not by the juries—to

absolve the maker if he has provided adequate warnings and instructions on the labels.

One such case has been decided in favor of a detergent maker in the New Jersey courts. A woman's skin was “burned,” she said, when she mistook an alkaline detergent—intended for use in automatic dish-washing machines—for a water softener product made by the same company.

Social Policy Cited: The “strict liability” doctrine is gaining impetus, the New Jersey judge wrote. “There is an increased feeling that social policy demands that the burden of incidental injuries caused by defective chattels be placed upon the producer since he is best able to distribute the risk to the general public by means of prices and insurance.”

But in the case at hand, the judge ruled that the manufacturer should not be held liable. Grounds for this decision: the manufacturer's explicit warning on the label—“Avoid contact of hands with Calgonite solutions. Use rubber gloves or a brush.”

This ruling, the court found, was not in conflict with “the accepted legal view both in England and in this

country” that a producer or seller may be liable “if he has failed to use reasonable care to make the (product) safe for the use for which it is supplied.”

Too Potent a Product: The decision went the other way in a Virginia case involving a fungicide that appears to have been too potent—at least in the way it was used by an orchard owner, who charged that while the product may have killed all fungi in his soil, it also caused the loss of a whole season's apple crop.

In this case, the court found that the label did not carry an adequate warning, and that the manufacturer's failure to provide such a warning made him liable to the tune of \$30,000. Referring to federal and state laws on pesticides, the Virginia court held that these statutes require the manufacturer of an economic poison to give both directions for use and a warning where necessary.

“There is no inference that these two requirements are in the alternative, nor is there anything to suggest that a manufacturer can avoid his duty to warn or caution by giving directions for use,” the judge declared. “The directions are required to assure effective use, the warning to assure safe use.” Both requirements, he said, are intended to protect the public.

Federal Approval Shown: In New York, a consumer won in a lower court a judgment against the maker of a hair dye, the court agreeing that the company had failed to furnish adequate pre-use test instructions. But recently in appellate court, that decision was reversed because the trial court had refused to allow the manufacturer to show that his instructions had been approved by the U.S. Food & Drug Administration more than 15 years ago.

These three cases seem to mean that a chemical manufacturer can get some degree of defense against unwarranted liability lawsuits if he is careful in formulating and producing his products and if he's prudent in providing instructions and warning. And the disclaimer on Stauffer's soil fumigant label—mentioned above—is accompanied by a prominent warning reading “Caution—avoid breathing fumes”; and by no fewer than 11 other precautions.

LIABILITY AND LABELS

(Recent chemical product liability cases hinging on adequacy of warnings and instructions on container labels)

Product	State	Alleged Injury or Damages	Outcome*
Alkaline detergent	New Jersey	Corrosive action on woman's hands, arms and face	Instructions and warning held adequate; manufacturer not liable
Fungicide	Virginia	Loss of one year's apple crop	Warning ruled not adequate; farmer awarded judgment for \$30,000
Hair dye	New York	Dermatitis of scalp and face	Judgment against manufacturer reversed; trial court should have accepted testimony on FDA's approval of directions for use

*Subject to possible further litigation.



OCAW LEADERS* AT WHITING: In assault on Independent union, the . . .

New Team Takes Over

This week and next, at two chemical process plants in Indiana, there'll be representation elections that are likely to demonstrate just what the recent AFL-CIO merger will mean in terms of organizing chemical workers.

At Whiting, just outside Chicago, the Oil, Chemical & Atomic Workers Union—supported by other AFL-CIO unions in the area—wants to oust the one-plant Independent Petroleum Workers Union as bargaining agent for employees at the Whiting refinery of Standard Oil of Indiana. And at the Indiana Ordnance Works operated for the government by Du Pont at Charlestown, not far from Louisville, Ky., the International Chemical Workers Union—in league with two craft-type unions—is trying to unionize 1,846 unorganized production and maintenance workers.

So far, it appears that in both elections the effect of last month's merger is showing up as a new-found willingness on the part of formerly hostile unions to cooperate so that one AFL-CIO union doesn't have to buck another on a ballot. A victory for any affiliated union is a victory for the

whole federation—so the reasoning now runs.

Concerted Campaigning: Thus it looks as though there will be fewer of the free-for-all melees that used to mark plant elections. And it's significant that in one of these Indiana plants the workers are now unorganized, and in the other are members of a small independent union; because those are the kinds of workers that AFL-CIO has been saying it will try to round up first.

In both elections, the union concerned has been careful to put in more than the usual amount of advance spadework; but OCAW has been particularly painstaking in its preparations for the vote at Whiting.

Besides arranging for teamwork from nearby AFL-CIO unions, OCAW has staged a series of training classes for potential members, stewards and officers. Instructors have included government officials, union officers and attorneys, college professors and a U.S. congressman—Rep. Ray Madden (D., Ind.). Among the topics covered: federal labor services, state labor laws, workmen's compensation, political action, economics of unionism, goals and responsibilities of trade unions, and the union's position in collective bargaining.

Close Alliance: At Charlestown,

ICWU first petitioned for all hourly paid employees except those who were already members of the International Brotherhood of Electrical Workers (AFL-CIO). Then the International Assn. of Machinists and later the Brotherhood of Carpenters & Joiners wanted to get into the act.

Du Pont reportedly didn't like the idea of a big interunion clash, often a disrupting factor in large plants; but when the three unions got together and agreed on "spheres of influence," the company said "yes" to a consent election.

As the alliance now stands, ICWU is campaigning to represent the bulk of the employees; Machinists and Carpenters are seeking to represent only certain maintenance groups. If these unions are successful in the balloting, each will do its own wage bargaining, but ICWU will be spokesman for all on other matters. This "divide and conquer" arrangement was worked out by William McGrogan, ICWU vice-president for the Chicago region.

To chemical management, these polls may serve as a barometer on how serious the AFL-CIO unions are in their much-discussed plans for a big organizing campaign; how smoothly the once rival unions will work together in the new federation; and how effective this teamwork will be in winning over the thousands of chemical plant workers who have resisted all AFL and CIO overtures up to now.



OSCAR & ASSOCIATES, CHICAGO
ICWU'S MCGROGAN: In wake of merger, a 'divide and conquer' pact.

*Left to right: Rex Marlowe and Roger Bisling, international representatives; John O'Keefe, chairman of the local stewards contract committee; O. A. Knight, OCAW president; Kenneth Hanes, president of Local 7-210; and (at rostrum, speaking at a recent mass meeting of prospective members) project director A. Dave Herring.

AEC's Invitation—Fuel for Thought

The government is taking steps to entice industry into tackling the toughest technical job in harnessing the atom to industry—chemical processing of burnt-up atomic fuel elements.

The Atomic Energy Commission, which owns the only existing chemical processing facilities in the country, last week announced a new program under which it will provide testing facilities, spent fuel, and the technology it has gained in its own operations to interested U.S. firms. From then on, it will be up to the companies to determine whether they can take over.

It won't be cheap, finding this out. AEC has specifically warned that costs of using government facilities will be borne by the users.

Chemical processing is an important part of present-day nuclear power technology because of the small amount of potential energy that can be "burned" out of a nuclear fuel rod before it is physically distorted or covered with a binding waste material flux. Since the fissionable material in a fuel element is extremely costly and rare, chemical recapturing procedures that are uneconomic for any other industrial application may be usable here.

Lucky Thirteen: AEC has been doing the job for its bomb plants and research facilities since the first reactor went into operation 13 years ago. Now that at least a half-dozen large private power reactors are planned, AEC wants others to take on the job. These plants, in addition to a dozen or more smaller research facilities, plus those of AEC itself, will be producing spent fuel elements within several years, and the agency wants private plants to be ready.

The job is unattractive at the present time for several reasons:

- The prototype plants being designed for construction in the next few years are spread all over the map, meaning that high-cost, long-distance hauling would be necessary to channel their spent products into the chemical reprocessing plant. Power plants are earmarked for western Pennsylvania, Nebraska, Massachusetts, Detroit, Chicago, and upstate New York.

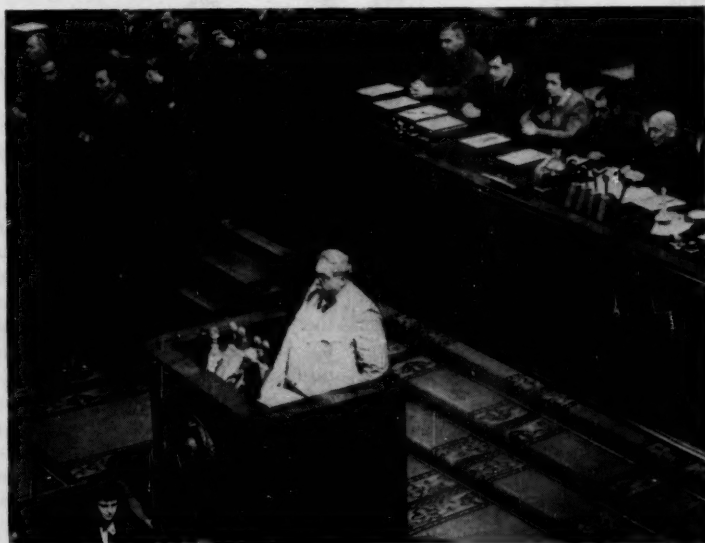
- Chemical processing is the most dangerous of all peacetime atomic operations. In melting down nuclear

fuel rods, deadly gases are released, the dangers of even normal chemical fires and explosions take on new meaning. Extra care must be exerted to prevent bulk fissionable fluids from forming a "critical" mass that could begin a spontaneous chain reaction. In addition, great care must be exerted in recapturing still-useful processing chemicals and in disposing of the leftover highly radioactive sludge.

The Brighter Side: But the possible gain to a company that comes up with a new system of fuel element reprocessing cannot be overlooked. About one-third of current estimated cost of generating electric power from the atom is charged off to chemical processing. A company that can offer savings to power companies could end up with a substantial business.

Several companies have already taken at least cursory glances at AEC's chemical processing operations, and turned thumbs down on jumping into the business. Vitro Corp. and Monsanto Chemical are understood to be among these, as is Sylvania Electric. Perhaps now, with AEC's offer of facilities use and materials to work with, they will be among those that accept the invitation to look the situation over.

If and when American firms decide to join AEC in processing fuel, they can expect to have offered to them for reprocessing about 150 tons/year of uranium contained in burnt-out fuel sludges. This total will become available in the years following 1960, when the nuclear power plants now being designed and under construction begin to burn through their first reactor core loadings.



Soviet Research Purse: Up 20%

BEFORE this year is out, Russian outlays for scientific research are expected to hit some \$3.4 billion.

That's the sum Soviet Finance Minister Arseny G. Zverev (*in the rostrum*) disclosed at last week's Moscow legislative session. Compared with estimated 1956 U.S. research spending by industry and

government, Russian outlay will lag by some \$1.1 billion. Nevertheless, U.S. chemical research management might profitably scrutinize (wherever possible) Russian technical literature available here. Reason: to cut costly duplications of time and effort on technical problems already successfully solved by Red scientists.

Washington Angles »»

»» President Eisenhower's "State of the Union" message presages a not unfavorable year for the chemical industry—even though no cut in corporate or excise taxes is called for.

»» Government spending will be as big as—or even bigger than—it is now; the era of budget cutting is over. And new farm programs will mean more money in farmers' pockets, which should be good news to fertilizer and pesticide producers.

»» The President will stick to his guns on foreign trade, and the tariff squabble is sure to go on. He will again urge approval of the rate-negotiating organization to carry out multilateral reciprocal

trade agreements. But he will oppose growing pressure in Congress to establish quotas on many products for which more protection is being sought.

»» The President will recommend to Congress: a "new plan" for federal aid to builders of research facilities; providing help for training research scientists; a new water conservation program to include sections on pollution and industrial consumption.

»» A new engineering command has been set up at the Army Chemical Center (Edgewood, Md.) Mission: to centralize the Corps' engineering functions in construction and alteration of chemical facilities; determine whether new chemical products are suitable for mass production. The new unit was recommended by an advisory committee of industry men headed by Otto Miller of Standard Oil of California.

EXPANSION . . .

Chlorine/Caustic: Columbia-Southern will expand production capacity at its Lake Charles, La., plant at a cost of about \$2 million. The goals: increase additional power and hike chlorine and caustic soda capacity. Construction will start this year, and the plant is expected to be onstream sometime in 1957.

Synthetic Resins: Haskell Chemical will build a synthetic resins plant in Richmond, Va. Estimated cost: \$60-70 million. A research lab will be included.

Phosphorus: Westvaco Division of Food Machinery & Chemical Corp. may erect a new phosphorus plant at New Orleans.

Tall Oil: Rayonier Inc. will build a tall oil plant at Jesup, Ga., near its present cellulose operation.

Orlon: Du Pont is considering construction of a new plant in Waynesboro, Va., to manufacture Orlon acrylic fiber. The plant would increase the company's Orlon production by 40 million lbs./year—a 66% boost.

Chemicals: The Louisiana State Board of Commerce and Industry recently approved 29 applications for new industrial construction totaling \$8.5 million. Bulk of these investments

will be by three chemical companies: Firestone Tire & Rubber Co., \$1.9-million expansion of its Lake Charles plant; Foster Grant Co., expansion of its styrene plant at Baton Rouge; Allied Chemical, \$1.56-million expansion of its General Chemical Division facility in Baton Rouge.

Polyethylene: Grace Chemical has optioned a site near Baton Rouge, La., as a possible location for its \$18-million polyethylene plant. Several sites in the Gulf Coast area (and elsewhere) are also under consideration. Decision is expected by next month.

COMPANIES . . .

Monsanto Chemical Co. will construct new general headquarters buildings on a 252-acre tract of land owned by the company in suburban St. Louis County—far from its present downtown headquarters. The three buildings, expected to be ready in 1957, will provide 300,000 sq. ft. of floor space. Simultaneously a new laboratory building will be built at the company's Creve Coeur, Mo., location to centralize research activities now performed in Ohio and Massachusetts.

Pyrene Manufacturing Co. and its wholly owned subsidiary, C-O-Two Fire Equipment Co., have merged, effective Dec. 30, under a new name, Pyrene-C-O-Two Corp. Capitalization continues at 194,000 shares of com-

mon stock outstanding of 250,000 authorized.

Reynolds Metals Co. directors have approved sale of an issue of 800,000 shares of preferred stock as part of a construction financing program. The \$40 million to be raised would pay for the company's projected seventh aluminum reduction plant. Common-stock holders will vote on the proposal Jan. 27.

Washington Laboratories, Inc. (Seattle) is giving up its liver oil production due to increased competition from Japanese industries. Once a large supplier of liver oil to U.S. pharmaceutical houses, it will continue with its production of Fran-Kem, a chemical bacteria and mould inhibitor.

Ascot Chemical and Adhesive Corp. has been incorporated under New York State laws to manufacture transparent tapes. It will have \$1 million initial capital.

The company will establish a plant in the New York City area, will produce a broad line of transparent tapes and related adhesive products, currently produced and sold internationally by Adhesive Tapes, Ltd. (Boreham Wood, England), wholly owned subsidiary of E. S. & A. Robinson, Ltd.

The new corporation will be owned by Adhesive Tapes, 20%, and by Eastern Corp. (Bangor, Me.), 80%.



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TWO INTERESTING POSSIBILITIES FOR CHANGES IN HOLIDAYS CAME OUT OF OUR SURVEY -I.E., MONDAY OFF AFTER EASTER AND A HOLIDAY FOR EACH EMPLOYEE ON HIS BIRTHDAY. SO FAR, NO ONE IS DOING ANYTHING ABOUT EITHER OF THESE, BUT IT IS A NEW THOUGHT --AT LEAST TO US.

Holiday Outlook: Non Status Quo

As with Scrooge last month, it's the ghost of paid holidays yet-to-come that's giving most chemical management pause in their personnel policy planning.

For, as today's industry leaders well realize, so long as holiday benefits continue to play major roles in company-labor give-and-take, chances are more holidays—rather than status quo—will figure in upcoming negotiations.

At least that's the summed-up opinion of industrial relations and personnel men of some 30 large chemical companies answering *CW's* recent survey of their holiday policies.

And while it appears from this rundown that today's fete picture on a national basis is changing but slowly, it is nevertheless trending steadily toward increased holiday benefits of one kind or another for chemical employees.

Holiday Profile: Be that as it may, how does the holiday profile shape up in chemical industry, right now, especially in those firms sporting numbers of plants in widely separated locations?

Some 85% of the companies surveyed now grant 6 or more holidays annually to their employees (both hourly and salaried workers); the remaining 15% offer their help 5½ days off per year or less.

Chemical plants located in highly industrialized or metropolitan hubs consistently show more holiday time off—7 or even 8 days/year. In fact, that same largesse of 7-8 holidays/year holds generally true-to-form everywhere except in the Southeast.

In that area, it seems, chemical plant holidays tally under-par for the course, average less than 5½ days off per year.

Variations from these means, of

course, show up on a plant-by-plant basis, dictated by individual company-union contracts, and, to a large extent, by local area customs.

On the Books: Taking six holidays/year as a "base" figure for the greater part of the industry (allowing plus or minus variations in individual plants), which specific days are chemical companies now charging off as holidays on their books?

From the survey, top priority in chemical management's choice goes to:

- New Year's Day.
- Memorial Day.
- Independence Day.
- Labor Day.
- Thanksgiving Day.
- Christmas Day.

Southeastern chemical plants with traditionally less time off, more often than not blue-pencil Memorial Day from this list.

On the other hand, those plants that have fuller holiday schedules might add:

- Washington's Birthday.
- Veteran's Day (Nov. 11).
- Election Day.
- San Jacinto Day (observed only in Texas; commemorates the state's independence).

And even April 15, income tax day, creeps onto this list at one or two chemical plants.

Trend-Setters: Yet, despite the acknowledged fact that these specific holiday commitments by chemical companies have been usual for some time, there's plenty of reason to believe new trend-setters are even now fast gaining firm footholds in numbers of plants.

For example, in many plants (especially in Louisiana, Cleveland and Detroit) there's a distinct push now

(from local unions) to ask for (and in many cases get) Good Friday as a regular paid holiday.

Similarly, another solid trend—one probably destined to confront management more in the near future—shows chemical firms granting Fridays off prior to Saturday holidays. That's a natural outcrop from companies proffering Mondays off after Sunday celebrations.

Still another significant movement, growing more and more usual in the industry: allowing extra days off to make up time-off missed when holidays fall during employees regular vacation periods. Companies feel that through this policy, employees will become less "choosy" about selecting their vacation periods, and tend to spread them out more uniformly throughout the work year. This, company heads say, minimizes clustering vacations around nonholiday periods. Result: less strain on production and administrative forces during vacation times.

Idea-Setters: Aside from these already "solid" trends, a few additional "idea-setters" could take hold in the industry soon.

Few firms are committed to them yet, but they're unquestionably laid on chemical management's desk right now for consideration.

Among them:

- Granting Friday following Thanksgiving Day off as a regular paid holiday.

- Charging an employee's birthday off as a paid holiday for him.

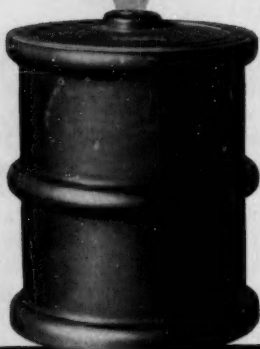
- Granting Mondays off following Easter Sunday.

And one of the bigger Cleveland chemical firms has come up with a novel proposal of its own on holiday benefits under consideration.

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BUSINESS & INDUSTRY.

That company is seriously considering granting a specified number of paid holidays per year to its employees, but would leave the choice of these to the individual.

By doing this, the firm's management feels they'll be minimizing holiday work-force disruptions. Besides, the plan will give employees the greatest leeway in fitting holidays to their own convenience.

Most important, perhaps, the company management claims, they'll be operating round the clock with stronger-than-skeleton forces.

Complex Problems: In fact, right now, that very question—keeping the plant going through the holiday—poses the most complex problems for chemical administrators.

And that's not the only knotty tangle resulting from holiday observance. Another sore spot is the question of absenteeism just before and after holidays.

Administrative departments (especially accounting), too, get their share of headaches from holidays. Should employees working overtime on celebration days get double time for the first eight hours, time-and-a-half for anything over that, or double time for all? Unions keep asking for (and some companies are now paying) triple time for holidays worked. At any rate, unless the contract rules are clearly defined, companies say, trouble is brewing for company executives.

Personnel Problems, Too: Personnel problems are also spawned from holiday benefits. Take plant maintenance staffs, for example.

They're frequently asked to work during holiday shutdowns. Result: more often than not, maintenance crews feel they're discriminated

against when it comes to receiving sufficient holiday time off. In fact, there seems to be no really equitable solution of this tangle except paying higher premiums to maintenance men working holiday overtime.

Another pressing holiday stumper facing some company management groups: two different unions operating in the same plant sometimes receive different holiday benefits. One gets seven holidays/year, the other eight. What happens on the eighth holiday?

Most companies in this predicament are taking the obvious way out: keep both union groups working on the eighth holiday, pay premium rates to those whose contract calls for eight paid holidays.

Holiday Premiums: But undoubtedly, the most cause for concern nowadays among chemical heads is determining what holiday premiums unions will be asking for next in lieu of holidays off.

As one company observer states, "We believe the most serious problem in negotiating holidays with unions is not what additional holidays they'll be asking for, but rather what new holiday premiums they'll demand instead."

Like many a chemical industry management question today, holiday benefits are constantly undergoing test and change. Many management groups, it appears, regard holidays as a closed book. That's obviously not the case.

Even now the industry as a whole is edging up to more holidays per year, higher premium pay for holidays worked. What impact the shorter work week, automation and GAW will have on the holiday picture is still to be faced by those firms that recognize the non status quo.

In a separate survey of 52 chemical plants in the Southwest:

- ✓ All 52 plants now grant 6 or more holidays.
- ✓ As many as 37 allow 7 holidays off.
- ✓ Of these, 24 guarantee holiday pay for employees.
- ✓ No plant in the area gives fewer than 5 holidays.



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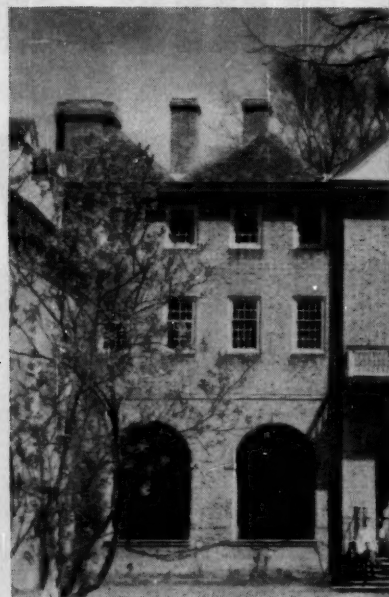
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to elevate recruitment from the "clearing house" aura it now seems to have acquired.

Chemical companies feel that the only man qualified to keep the whole situation under control is the college placement director himself. And the easiest way to effect this end, say the experts, is to resolve administrative differences on campus, keep the reins in the college placement director's hands.

Chemical company recruiters are fostering this authority by channeling their activities only through college bureaus, rather than bypassing them.

Next in Priority: Aside from that situation, next in chemical company priority for improvement is the suggestion that college placement men further their liaison with students.

One suggestion: good interview offices always provide a man's cumulative average, class standing, and supplementary personal data before an interview.

Unfortunately, however, not all college bureaus now conform to this practice. Actually, it seems likely that, if enough chemical companies request such folders from college bureaus not now supplying them, favorable action will be forthcoming from the bureaus themselves.

Career Possibilities: Very often, recruiters moan, they run into numbers of interviewees who know little or

Harried Man on Campus

If the college placement director is big man on campus in the manpower race these days, then assuredly one of the most harried figures among the ivy-colored walls is the chemical company recruiter.

And it's not just the shortage of technical manpower that keeps him hopping. To a large degree, he's being snagged by irritations he meets in dealing with college placement directors or their staffs.

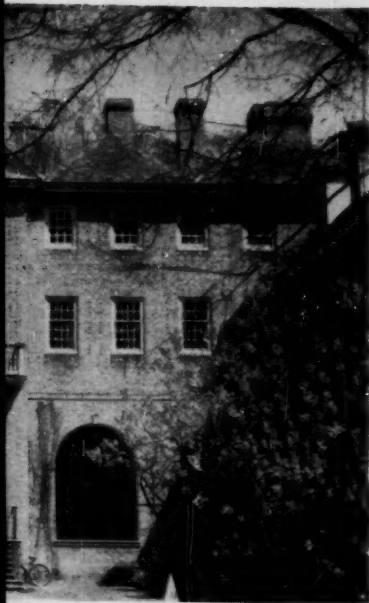
Just last week, *CW* revealed the results of a survey on how college placement directors size up chemical company recruiting activities. Now the coin is flipped to show what weak spots busy chemical manpower seekers can find in their college counterparts.

Praise First: In answer to this survey, chemical recruiters first gave a nod to the job that most college placement directors are now performing on campus. "Considering their small budgets, lack of facilities, and overwhelming demands made on them," one recruiter said, "they're doing an excellent job for us."

Nevertheless, despite this seemingly untarnished regard company recruiters hold for their colleagues-in-recruitment, most of them willingly pinpointed certain annoyances they're experiencing on the job.

Top of the List: And surprisingly enough, on top of the list of recruiters' "gripes" is one that suggests college placement heads could be doing more

EWING GALLOWAY



nothing about career possibilities in the chemical industry.

As a result, company men claim, they spend too much time briefing potential candidates on general career background information.

Recruiters would like to see more career guidance lectures on campus. Value: both students and interviewer alike could spend less time on non-

essentials, settle down to business more quickly.

Chemical companies themselves might aid this situation considerably by making available both to prospective candidates and placement offices more background literature aimed at career guidance rather than, say, company history.

Preinterview Forms: Furthermore, it's apparent from their comments that company personnel representatives are now plagued by long-winded preinterview forms.

"How about setting up a standard preinterview form?" say the recruiters.

Actually, the only probable way in which such a standard form could be forthcoming would be through closer liaison between college bureau chiefs and recruiters themselves. College placement associations geared to bring together employer and school administrative personnel would be one logical place for chemical company men to press for this relief.

Schedules Too Full: Continuing their constructive criticisms, many chemical company recruiters complain that certain placement offices are guilty of keeping their schedules just a little too full.

In their overenthusiasm to aid the recruiter in filling out his time on campus, placement bureaus are flood-

ing recruiters' schedules right up to the last minute.

Often, interviewers claim, they find their end-schedule jammed with many candidates they would normally regard as outside their immediate interest.

Rather than seeing such candidates (to whom they could obviously offer little), chemical recruiters would spend that last hour contacting faculty members, or even college placement directors themselves.

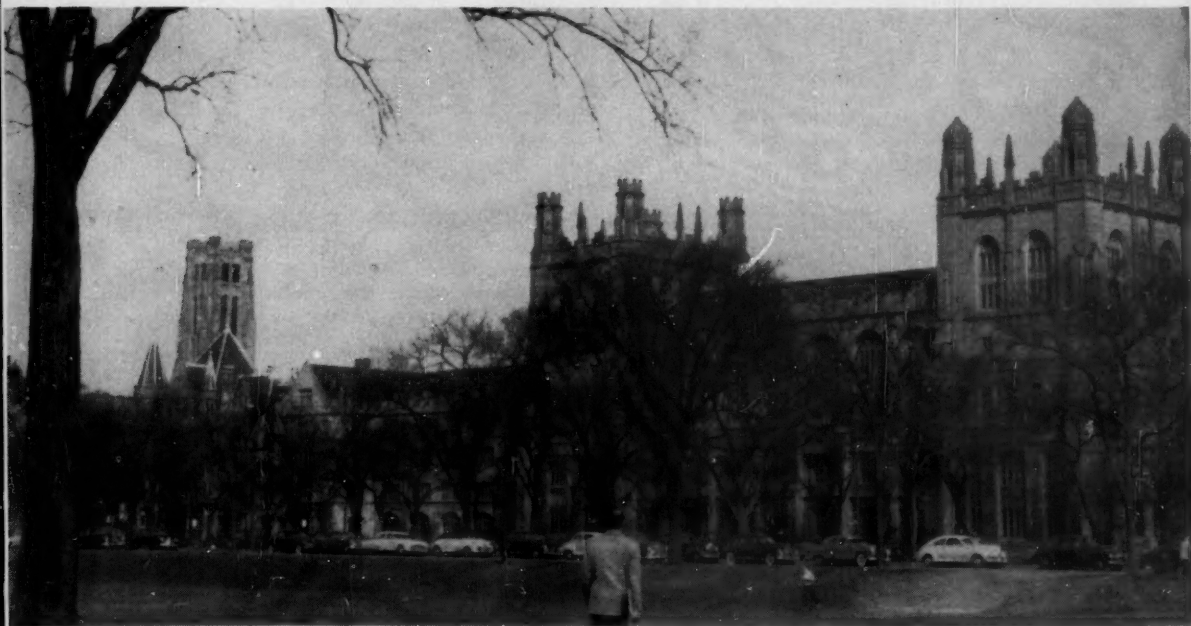
Few Last Pointers: Recruiters say placement heads should:

- Supply them with a map of the campus, or at least the address of the placement bureau.

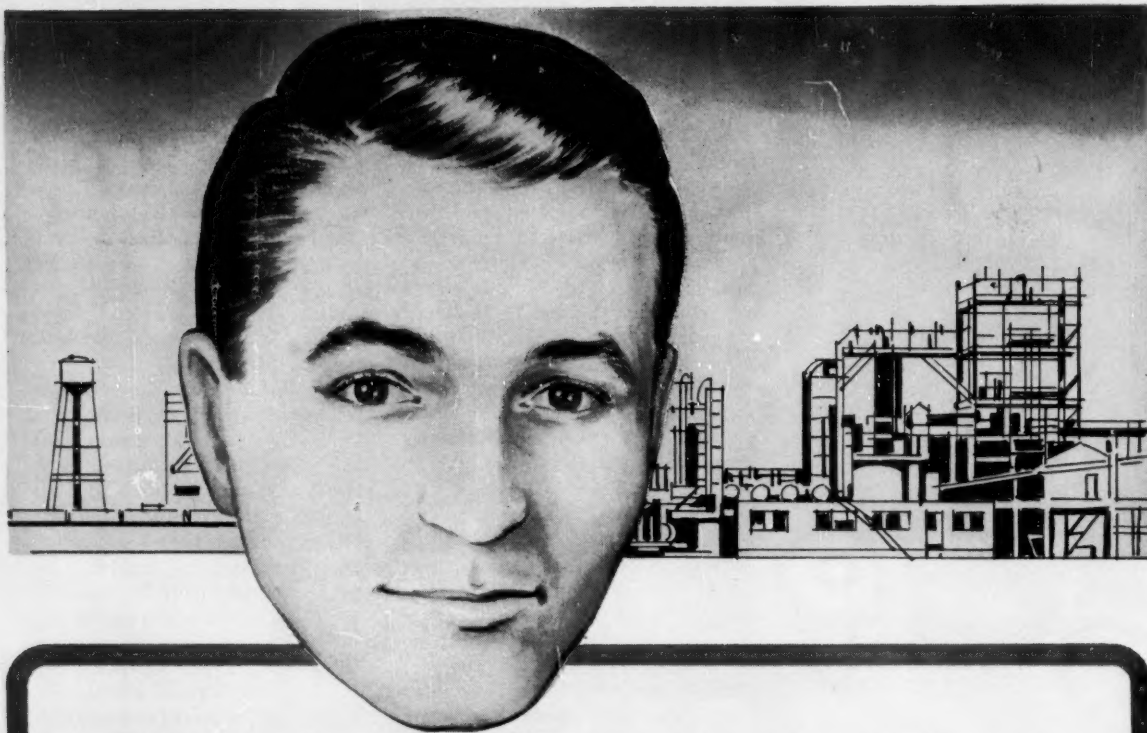
- Invite more instructors (rather than department heads) to faculty-industry meetings.

- Encourage more liberal arts majors and nonchemical engineers to request chemical company interviews.

Admittedly, a fair measure of the difficulty that chemical company recruiters are now experiencing on campus stems from inexperience at schools where placement is a new function. Right now, chemical recruiters rank about tops with college placement heads. Improving that relationship still further is the only choice open to those chemical companies that seek to ease a problem that harries both campus and chemical industry alike.



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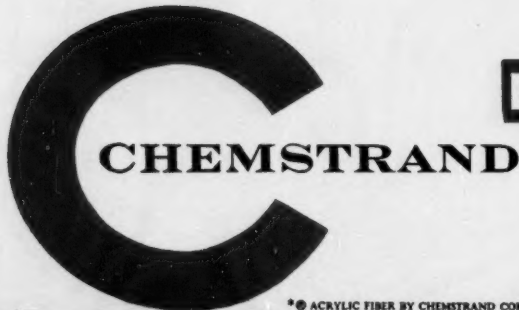
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Charting Business

CHEMICAL WEEK
January 14, 1956

DOMESTIC SULFUR CONSUMPTION PATTERN

(in thousands of long tons)

	Sulfuric Acid	Wood Pulp	Insecti- cides & Fungicides	Rubber	Total Consump- tion
1945	2,700	297	100	58	3,500
1946	2,700	305	110	65	3,530
1947	3,300	370	111	65	4,210
1948	3,300	400	125	75	4,420
1949	3,300	345	125	60	4,090
1950	3,800	435	140	75	4,970
1951	3,800	391	135	75	4,820
1952	3,800	380	105	75	4,830
1953	4,100	390	100	80	5,100
1954*	4,100	400	100	75	5,070
1955*	4,300	430	105	85	5,400

* Estimated.

Source: Bureau of the Census, "Facts for Industry."

THOUGH sulfur users aren't queuing up for supplies yet, they may have to before too long. Record production in 1955 was enough to meet demands, but some sulfur producers feel they may not be able to keep pace with the rapid growth in consumption expected over the next few years. It's just now that some of the many sulfur users, hampered by con-

tinual deficits in post-World War II supplies and the allocations of the Korean emergency, will be able to hit their possible growth rates. And here's the rub: with any such long-term increase, the sulfur balance may tip toward scarcity.

The immediate outlook, though, is not near so bleak. Most users should be able to find plenty of sulfur to grow on in '56.

SALES IN PAINTS

(in millions of dollars)

	TOTAL	TRADE PAINTS	INDUSTRIAL PAINTS
1945	716	401	315
1946	883	545	338
1947	1,194	740	454
1948	1,207	747	460
1949	1,107	703	404
1950	1,327	821	506
1951	1,339	807	532
1952	1,341	831	510
1953	1,403	840	563
1954	1,361	838	523
1955	1,500 est.	900 est.	600 est.

Source: National Paint, Varnish and Lacquer Assn.

PAIN'T MAKERS are happily marching along in the business boom parade. They chalked up \$1.5 billion in sales last year and the outlook for 1956 is only slightly less exuberant—\$1.25 billion. Reasons for this rosy picture are easy to find: one, the fertility of the econ-

omy, with new plants sprouting up all over the country, requiring lots of paint, both for first coat and for maintenance; another, the recent surveys that show millions of U.S. homes have needed sprucing up for several years, should be ready for face-lifting now.

Charting Business

(Continued)

PAPER AND PAPERBOARD

(in millions of short tons)

	PRODUCTION	CONSUMPTION	CAPACITY (based on 310 days operation, end-of-year figures)
1945	17.4	19.7	20.3
1946	19.3	22.5	20.4
1947	21.1	24.8	22.0
1948	21.9	26.1	23.4
1949	23.0	24.7	24.6
1950	24.4	29.0	25.6
1951	26.0	30.6	26.3
1952	24.4	29.0	27.1
1953	26.5	31.3	28.6
1954	26.7	31.2	29.9
1955	29.8	34.6	30.8

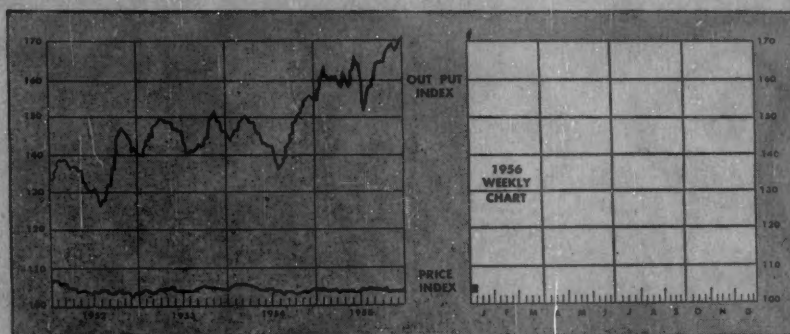
Source: American Paper and Pulp Assn.

BOOMS don't markedly affect the paper industry. In most years—whether good or bad ones economically—the industry will continue the steady growth it has shown during the past decade. But though there is a general parallel between production and consumption, you find

such notable exceptions as newsprint. Right now, print users are in an uproar as Canadian producers increase prices, and cut back on shipments.

Reason for the squeeze: newspaper advertising is closely tied to the economic boom.

BUSINESS INDICATORS



WEEKLY

	Latest Week	Preceding Week	Year Ago
Chemical Week Output Index (1947-49=100)	173.5	172.5	154.8
Chemical Week Wholesale Price Index (1947=100)	104.9	104.8	104.4
Stock Price Index of 11 Chemical Companies (Standard & Poor's Corp.)	480.7	477.2	365.1

MONTHLY — Foreign Trade (in millions of dollars)

	Latest Month	Exports		Imports	
		Preceding Month	Year Ago	Preceding Month	Year Ago
Chemicals, total	97.7	91.2	93.0	20.7	16.9
Coal-tar Products	6.5	5.6	6.7	3.8	2.5
Industrial Chemicals	15.5	11.7	12.3	7.7	5.0



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BUSINESS & INDUSTRY

FOREIGN

Fertilizer/Mexico: Guanos y Fertilizantes, a government agency, will open a new plant—its fifth—early this year near Puerto Mexico. Cost: \$8 million. Production rate will be 180,000 tons/year, mostly ammonium sulfate and nitrophosphates.

Chemicals/Iraq: Iraq's first complete oil refinery, constructed by Kellogg International Corp., is now on-stream. Government-owned, its sulfuric acid manufacturing unit is called unique to refinery construction. The plant will reclaim spent acid as well as produce fresh acid for processing.

Petrochemicals/Japan: Eight member companies of the Furukawa financial group plan to enter the petrochemical field soon with technical aid from three B. F. Goodrich Co. affiliates. They will form a concern, tentatively called the Furukawa Chemical Industry Co., capitalized at about \$20 million. To be built: a synthetic rubber processing plant in Kawasaki, near Tokyo (cost \$8.3 million); a polyethylene and ethylene oxide plant at Ogu (cost \$2.8 million); and a synthetic wool plant at Niigata (cost \$8.3 million).

Glass/Czechoslovakia: In a determined grab for more markets, Czechoslovakia is now selling flat glass at prices 50% below those of German and Western European manufacturers.

Rubber/Hungary: The Western world may soon lose another rubber products customer. The Hungarian government says it definitely will enlarge its synthetic rubber industry from 1956 on.

Rubber/West Germany: The West German rubber industry regards the recently introduced system of split prices for synthetic rubber in the U.S. as discrimination against foreign buyers of U.S. rubber. Prominent German rubber makers fear that higher U.S. export prices might seriously affect cost and price relations of their industry, which, to a growing extent, depends on imported synthetic rubber. Of about 16,000 tons of synthetic rubber imported by West Germany in the first 10 months of 1955, over 10,000 tons came from the U.S.



SCHNITZLER: In new federation, a two-pronged militancy appears.

LABOR

Active on Two Fronts: It's now clear that the newly merged AFL-CIO—at its outset, at least—is likely to be militant on two vital issues. Appointment of Walter Reuther as chairman of the economic policy committee is seen as a sure sign that demands for higher wages and other economic benefits will be on the expansive side; and recent statements by Secretary-Treasurer William Schnitzler indicate that the new federation will be actively anti-Communist, not merely non-Communist.

For chemical process companies, significance may lie in the fact that O. A. Knight—president of the Oil, Chemical & Atomic Workers—has been named to Reuther's economic policy committee. Knight's union already has adopted lofty wage goals for its oil-worker members this year, and OCAW locals at chemical plants are sure to hanker for equally generous rises.

Year-End Book Balancing: The new year begins with the labor force in the U.S. at a record level of about 70 million persons, including more than 21 million women. Total employment in chemicals and allied products hovered close to the 825,000 mark—also a record.

That most of those persons prospered during the past year is the testimony of Secretary of Labor James



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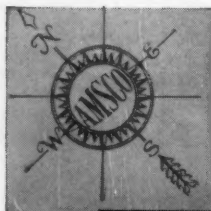
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Mitchell, who says that 1955 was "the most satisfactory year for the American worker on record." In support of this assertion, figures can be cited to show that chemical production workers' average hourly earnings rose by about 10¢/hour during the year; and fringe benefits mounted from an average of 5.9% of 1954 payrolls to an estimated 6.5% of 1955's notably larger wage costs. In the South—where wages have lagged behind the rates in other parts of the country—average weekly earnings climbed by amounts ranging from \$1.90 in Mississippi to \$5.28 in Alabama. Latest average weekly earnings in Southern states varied from a low of \$50.28 in Mississippi to \$62.88 in Alabama.

More Mental Stress: While physical injuries are becoming less frequent in modern plants, automatic equipment and electronic controls are contributing to a larger number of cases in which plant workers tend to become inefficient and downright sick because of mental tension. This is one of the conclusions reported at the recent automation conference held in New Haven, Conn., by the Society for Applied Anthropology. A Yale University research project indicates that while the new machinery takes much of the toil out of factory work, the strain of watching and controlling complex equipment often makes workers "jumpy" and less able to cope with personal worries.

Slow Going in '55: While the AFL-CIO has ambitious plans for organizing chemical workers, this kind of activity has been moving at a relatively slow pace during the past two years—partly because of the internal scrap within the International Chemical Workers Union. While exact membership figures are never available, some indication of how much chemical unionizing has been going on in recent years can be gleaned from annual progress reports issued by ICWU's Canadian department. That section claimed "more than 11,000" members in December '53 and 12,188 as of last month—a rise of about 9% in two years. Total employment in Canada's chemical and allied industries: about 50,000. In the U.S., over the same period, ICWU has lost membership to District 50, United Mine Workers, because of the 1954 dissension.

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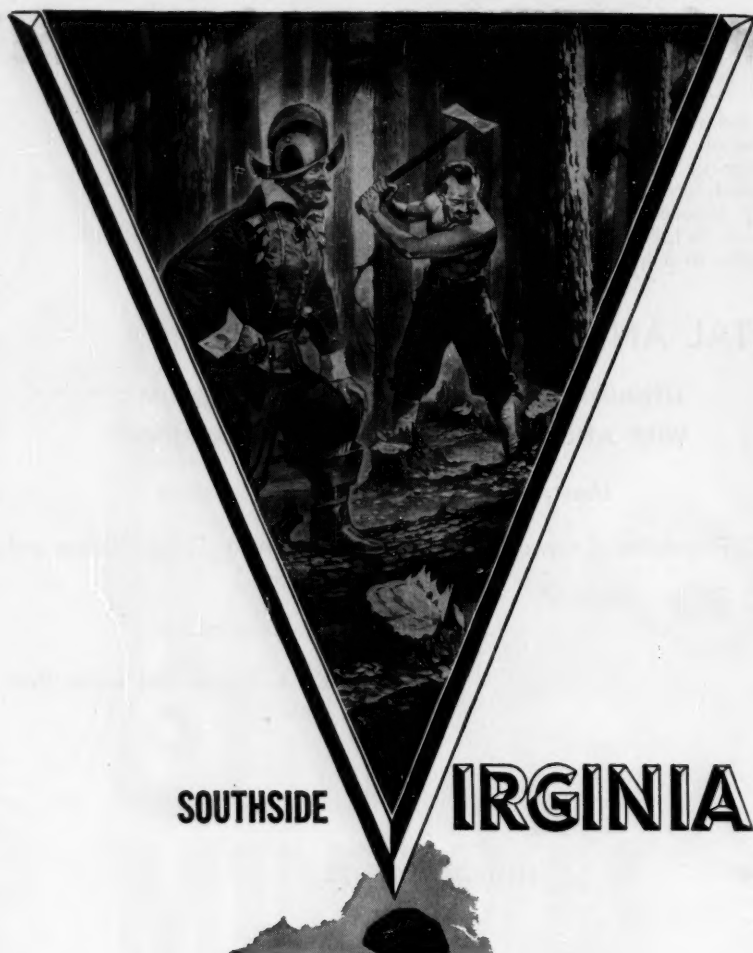
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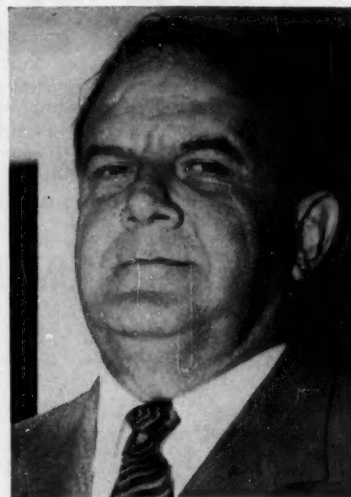
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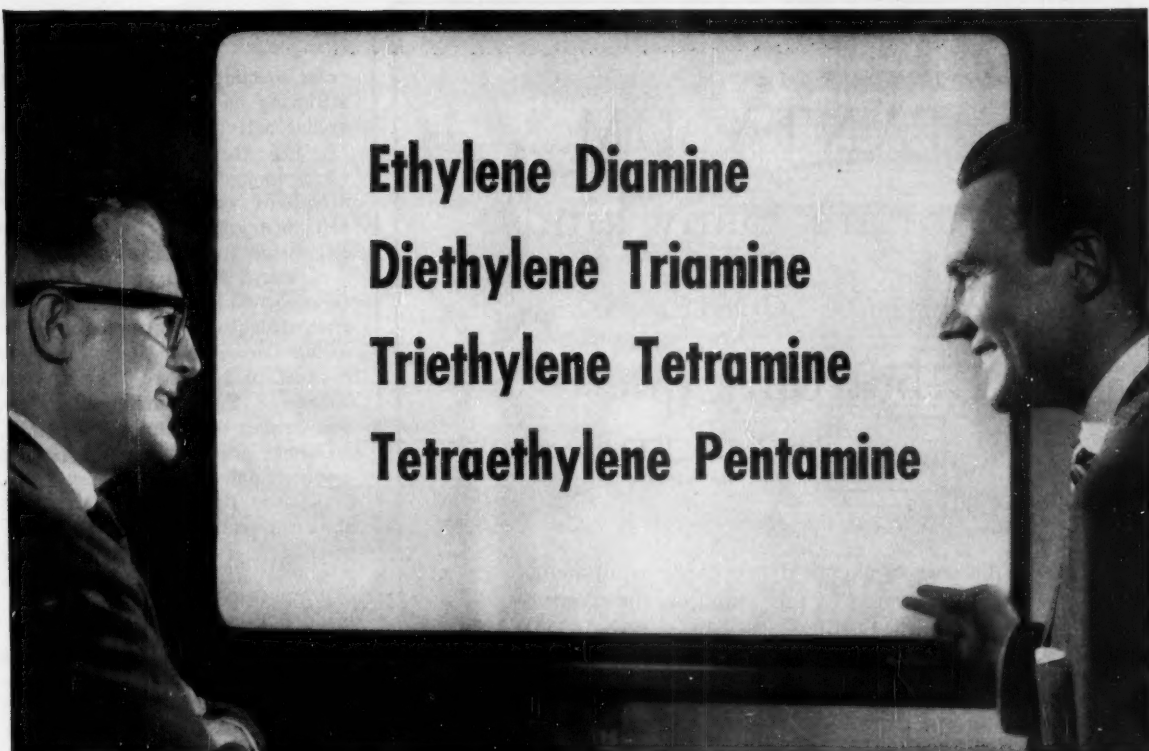
BARNES: In filing of antitrust cases, he racks up near-record in '55.

LEGAL.

Antitrust in Spotlight: Starting this month, antitrust legislation is going to be breaking into the headlines, with Democrats in Congress striving to show that the Republican Administration is biased in favor of big business. Sen. Harley Kilgore's Judiciary Committee is expected to make a report late this month calling for a strict enforcement policy, but possibly recommending an end to overlapping authority on the part of the Justice Dept. and the Federal Trade Commission in antitrust policing.

The Republicans in the Justice Dept. have built up a performance record that may serve as a sturdy defense against the Demos' attack. Under Assistant Attorney General Stanley Barnes, the Antitrust Division during 1955 filed 35 civil antitrust actions and 20 criminal suits under the same laws. This was the highest total for any year since 1940 when zealous Thurman Arnold—then head of that agency—brought 62 criminal prosecutions and 30 civil suits. Arnold's record, however, includes a number of instances in which certain situations were assailed through both criminal and civil proceedings; and Barnes' policy is to avoid such doubling up on corporate defendants.

Foreign Patent Suit: Another U.S. concern has successfully defended a pharmaceutical patent in Japan. Last fall, American Cyanamid won a court



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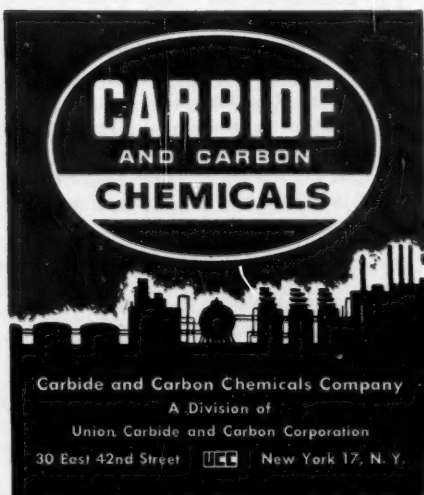
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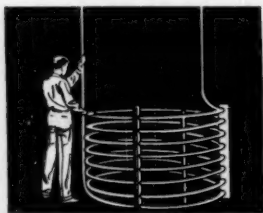
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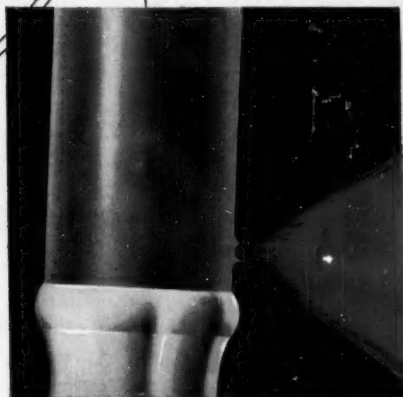
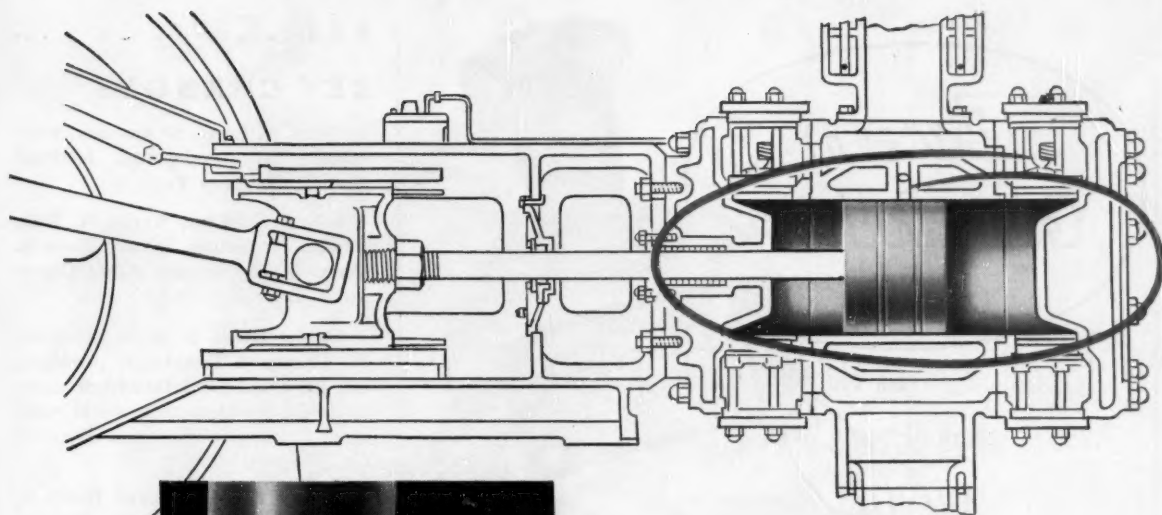
order directing a Japanese firm to stop infringing on Cyanamid's chlortetracycline patent (*CW Newsletter*, Sept. 17, '55). This week, Parke, Davis & Co. is congratulating itself on at least a tentative victory in its litigation to halt infringement of its Chloromycetin patent in that country.

A Tokyo district court has issued an injunction barring the Yamanouchi Pharmaceutical Co. from making or selling chloramphenicol—which P. D markets under the Chloromycetin tradename. Yamanouchi is the Japanese licensee of Boehringer & Soehne, a German firm that asserts its process is entirely different from that of Parke, Davis. The Tokyo court rejected that argument, and Parke, Davis is now pressing litigation against Boehringer & Soehne in Germany, has won the first round in the lower courts.

Fertilizer Tradename: Also upheld in recent court action: the tradename Milorganite, which the city of Milwaukee uses for the organic fertilizer produced and marketed by its city sewerage commission. A federal court has awarded Milwaukee \$2,500 in damages and ordered a Pittsburgh concern to stop using the name Pittorganite for a similar product.

'Fair-Trade' Triumph: The "fair-trade" battle is continuing hot and heavy as 1956 begins, with the outcome very much in doubt. But one straw in the wind is the recent victory by Hoffmann-LaRoche, Inc., over a retail druggist in Cliffside Park, N.J. The pharmaceutical manufacturer was awarded a final judgment of permanent injunction under New Jersey's state "fair-trade" law.

Fluoride Appeal Filed: Reynolds Metals Co. has filed in the circuit court at San Francisco its appeal from the \$38,293 judgment against the company in the suit in which a farm family alleged injuries due to fluorine fumes from Reynolds' aluminum reduction plant near Portland, Ore. (*CW*, Dec. 3, '55 p. 34). In its final brief next month, Reynolds is expected to contend that there was no showing in the trial court that Reynolds had been negligent in operating its Troutdale plant. On the contrary, says Reynolds, testimony was that the company was "diligent" in its attempts to reduce the emanation of fluorides.



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As air cylinder lubricants in compressed air systems, Cellulubes prevent the formation of excessive carbon deposits—No. 1 source of compressor fires and explosions. They are excellent lubricants—highly stable, non-corrosive, non-foaming.

As the hydraulic fluid in diecasting and similar critical operations, Cellulubes reduce the ever-present danger from uncontrollable fires due to line breaks or other failures. Chemical compounds that contain no additives, Cellulubes' physical properties are exceptionally stable under continuous duty.

6 CONTROLLED VISCOSITIES

With the expansion of the Cellulube series to 6 controlled viscosities: 90, 150, 220, 300, 550, and 1000 (S.U.S. @ 100° F.), the way is open to replace flammable fluids in many hazardous applications. If you would like to evaluate Cellulube in your own opera-

tion, use coupon below to order working samples and complete use data. Celanese Corporation of America, Chemical Division, Dept. 552-A, 180 Madison Avenue, New York 16, N. Y.



*Reg. U.S. Pat. Off.

Celanese Corporation of America, Chemical Division, Dept. 552-A, 180 Madison Avenue, New York 16, N. Y.

Please send me working sample and technical bulletin on Cellulube for air compressor service_____for hydraulic systems_____
Send technical representative_____

Name_____

Title_____

Company_____

Address_____

City_____Zone_____State_____

*Even
to this—*



Dicalite Filteraids can give Increased clarity!

This is really an odd one. It started with a bottle of distilled water in a Dicalite laboratory, tight-stoppered in a sterile container. For certain reasons we had cause to question it. So we filtered it, using the finest grade of Dicalite filteraid—and removed microscopic solids which had survived distillation!

While this was a laboratory matter, it is of real importance to every man concerned with the clarification of process liquors, or with the separation of finely divided solids from liquids. If you require filtration so "sharp" that it will trap better than 95% of bacteria and other sub-micron-sized solids, there are Dicalite filteraids that do just that. Other Dicalite filteraids give faster flow-rates, yet still yield filtrates of sparkling clarity. No matter what your standard of clarity, there is a Dicalite filteraid which will meet it, or surpass it. We will be glad to advise with you on your particular process problems. Write us!



Dependable
GLC
GREAT LAKES
Dicalite
DIATOMACEOUS MATERIALS

DICALITE DIVISION • GREAT LAKES CARBON CORPORATION,
612 SOUTH FLOWER STREET, LOS ANGELES 17, CALIFORNIA

B & I.

KEY CHANGES

Frank E. Large, to manager, engineering and development, National Carbide Co. (New York).

John J. McCloy, **Kerby H. Fisk**, **Charles W. Nichols, Jr.**, and **Harry S. Ferguson**, to directors, Allied Chemical & Dye Corp. (New York).

Berrien Eaton, to board chairman, **W. Thompson Tambke**, to president, and **Raymond F. McDonald**, to executive vice-president and general manager, Eaton Chemical and Dyestuff Co. (Detroit).

Edward P. Aikman and **Harry S. Bowen**, to vice-presidents, Nichols Chemical Co., Ltd. (Montreal, Quebec).

Walter A. Hensel, to vice-president, General Aniline and Film Corp. (New York).

Richard Swan Buell, to director, and **Jack Weiss**, to vice-president, Catalin Corp. of America (New York).

Carl M. Anderson, to secretary, Merck & Co., Inc. (Rahway, N.J.).

Robert E. Wilkin, to director, Hooker Electrochemical Co. (Niagara Falls, N.Y.).

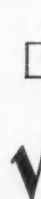
Raymond D. Stevens, Jr., to vice-president and director, Pierce & Stevens Chemical Corp. (Buffalo, N.Y.).

A. J. Weith, to sales manager, Petrochemicals Dept., American Cyanamid Co. (New York).

Robert S. Whiteside, to president, Sterwin Chemicals Inc. (New York).

James K. Lindsay, to treasurer, Heyden Chemical Corp. (New York).

C W Report



Next Week . . .

Management consultant **James Newman** views the shortage of executive reserves in the chemical industry, gives some advice on what to do about it.



**are your possible savings
on 73% caustic soda
going down the drain?**

Increases in freight rates over the past several years make it highly advantageous for you to re-examine the form of caustic you are buying.

A little figuring right now may save you thousands of dollars next year alone. Some of our customers who have converted from 50% to 73% have realized annual savings ranging from \$2,650 to over \$35,000.

Your location and the volume of caustic soda you use naturally influence the amount of your savings. But small and large users alike can frequently save substantial amounts now going down the drain.

Savings also are often possible with customers who buy solid and flake caustic.

The important thing is to do something about it now. It will cost you nothing to find out. Our Technical Service Department will be glad to assign one of its specialists to discuss your individual case, to make recommendations and to estimate your annual savings.

Write today to our Caustic Soda Department at the Pittsburgh Office.

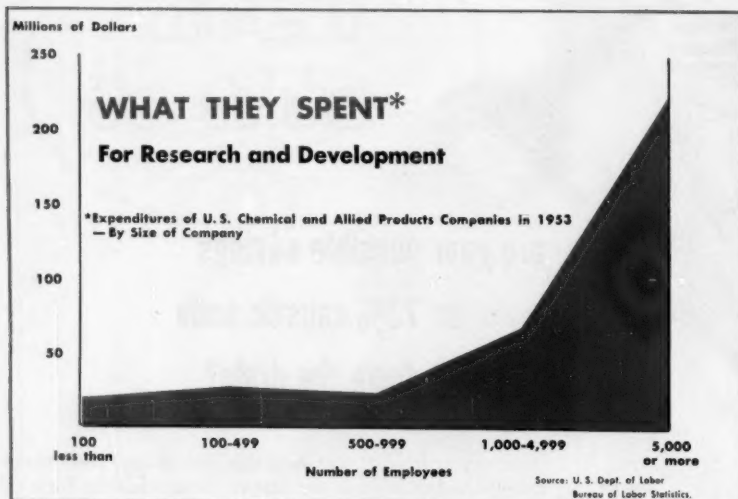
**COLUMBIA-SOUTHERN
CHEMICAL CORPORATION**

SUBSIDIARY OF PITTSBURGH PLATE GLASS COMPANY
ONE GATEWAY CENTER - PITTSBURGH 22 - PENNSYLVANIA



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and its Commercial Chemicals Division



NSF Tots up the Tab

First results of the National Science Foundation's industrial research survey put chemicals at the top in basic research expenditure, fourth among all industries in total research outlay.

About one half of the total number of chemists employed in the chemical industry work in research and development.

By this week, the National Science Foundation's preliminary report on U.S. industrial research and development (*CW Technology Newsletter*, Dec. 24, '55) is getting wide circulation. Carried out for NSF by the Bureau of Labor Statistics*, the study is a potentially valuable tool for research planners in industry and government.

It estimates (for 1953) how much was spent on research by industry groups, source and distribution of these funds, and the proportion of scientific and engineering personnel doing research and development.

One eye-opener among NSF's findings is the chemical industry's basic research** expenditure. Estimated at

\$38 million, it comprises 25% of the total spent by all industries for such research, and about twice as much as was spent by either the electrical-equipment (second highest) or aircraft industries.

In comparing the total research and development dollars allocated to basic research, chemicals shared honors with the stone, clay and glass products group. Each spent about 10% on fundamental studies. In the second group, basic research was concen-

trated largely in the glass industry.

But chemicals fell behind the electrical-equipment (\$778 million), aircraft and manufacturing industries (not elsewhere classified) in over-all research and development spending. Of a total of \$3.7 billion spent by private industry, the chemical outlay accounted for \$323.1 million.

A common trait of all industries—including chemicals (*see graph*)—is the tendency for the larger companies to do the bulk of the research. The 375 largest companies (5,000 or more employees) bore more than 70% of the total research and development cost, although these firms accounted for only about 2% of firms (estimated at 15,600) doing research.

Chemical manpower also looms large in survey results. In Jan. '54, one out of 12 chemical employees was a scientist or engineer. Included: 23,400 chemists (39% of the number in private industry) of whom approximately half were engaged in research and development.

Excluded from the survey are statistics on self-employed individuals, trade associations, commercial laboratories, and consulting firms. Reason: the cost of research and development in these categories is believed to be small compared with the total. Also not covered, but scheduled for the final report: cost data—in detail—on investigations conducted by private industry working on government contracts.

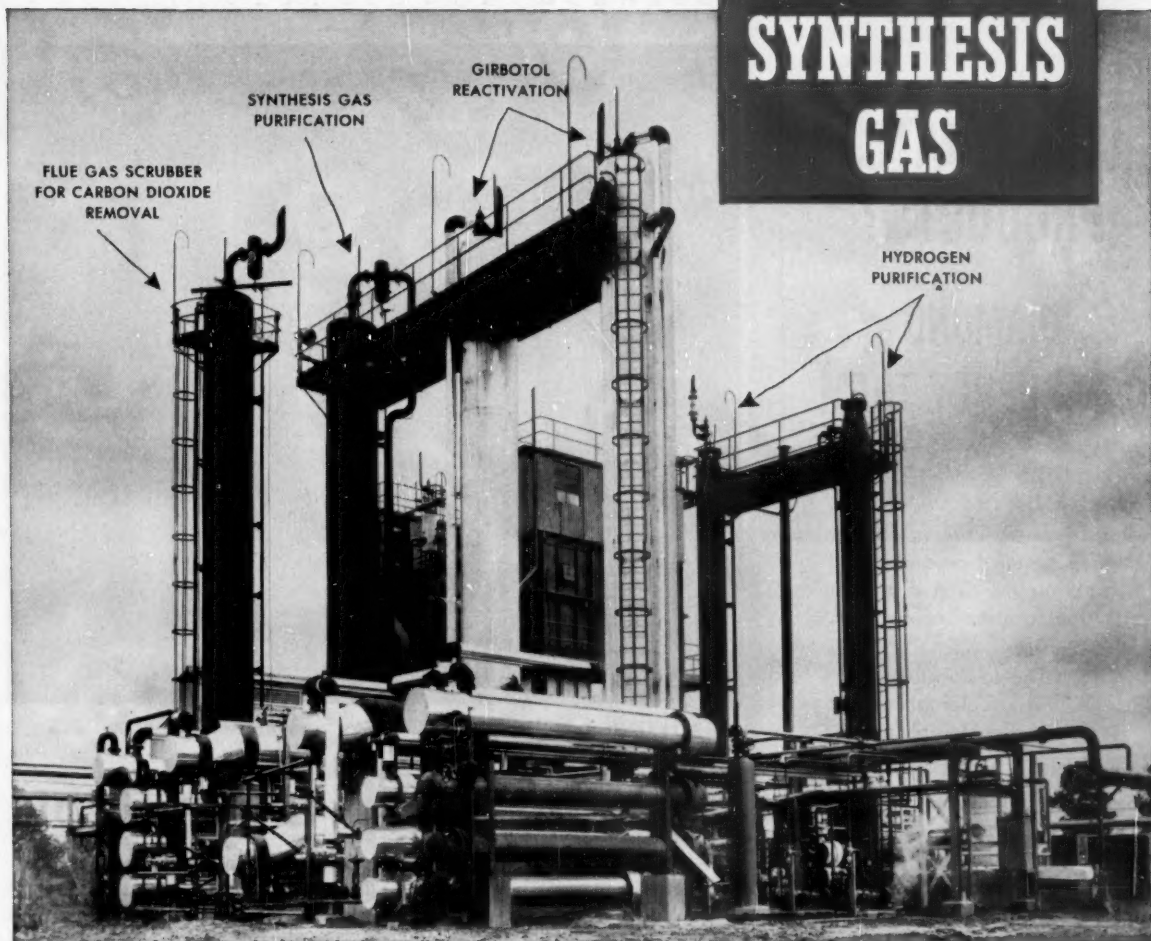
Although admittedly incomplete, NSF's survey makes one point that is not likely to be changed by yet-to-come data: chemicals lead the field in basic research. And the industry is looking for the pace of the latter to quicken before it subsides.

NSF SURVEY HIGHLIGHTS

- Private industry accounted for about two thirds of the more than \$5 billion spent on research and development in 1953.
- Chemical process industries (chemicals, petroleum, paper, rubber and glass) spent \$626.5 million of this amount.
- Companies having 1,000 or more employees—9% of all researching firms—paid 85% of the industrial total.
- The chemical (and allied products) industry employed 62,700 scientists and engineers in Jan. '54. About 34% of these were involved in research and development.

*In accordance with the President's Executive Order 10521. In late 1954 and '55, approximately 11,600 companies considered representative of U. S. industry received questionnaires; 90% of the returns contained usable information.

**Which was defined as "projects that are not identified with specific product or process applications, but rather have the primary objective of adding to the over-all scientific knowledge of the firm." This classification was derived from one developed in a Harvard University study and included in *Spending for Industrial Research, 1951-'52*, p. 98, by DeWitt Dearborn, Rose Kneznick, and Robert Anthony (*CW*, Dec. 12, '53, p. 40).



GIRDLER builds versatile plant for Texas Eastman Company

DIVISION OF EASTMAN KODAK COMPANY

TEXAS EASTMAN'S synthesis gas plant at Longview, Texas, produces a mixture of hydrogen and carbon monoxide. In addition, at this installation a separate section of the plant was built to supply high-purity hydrogen.

A wide range of compositions is obtainable with Girdler synthesis gas plants . . . the ratio of hydrogen to carbon monoxide can vary from 4:1 to 1:9, to suit requirements.

Girdler designs, engineers, and constructs process plants like this, assuming unit responsibility to assure sound results. We are particularly experienced in high-temperature, high-pressure processes, involving corrosive materials. For complete information call the nearest Girdler office today.

GIRDLER DESIGNS processes and plants

GIRDLER BUILDS processing plants

GIRDLER MANUFACTURES processing apparatus

GAS PROCESSES DIVISION:

Chemical Processing Plants	Nitric Acid Plants
Hydrogen Production Plants	Acetylene Plants
Hydrogen Cyanide Plants	Sulphur Plants
Synthesis Gas Plants	Ammonia Plants
Carbon Dioxide Plants	Ammonium Nitrate Plants
Gas Purification Plants	Hydrogen Chloride Plants
Plastics Materials Plants	Fertilizer Plants
Catalysts and Activated Carbon	

The **GIRDLER** *Company*

A DIVISION OF NATIONAL CYLINDER GAS COMPANY

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GAS PROCESSES DIVISION: New York, San Francisco. **VOTATOR DIVISION:** New York, Atlanta, Chicago, San Francisco
In Canada: Girdler Corporation of Canada Limited, Toronto

CHLORINATED PRODUCTS?

DIAMOND CAN SUPPLY THEM

Newark, N. J.

—that's where DIAMOND makes these chlorinated products. And we're equipped to give prompt attention to orders of any size.

Chloral
2, 4-Dichlorophenol
2, 4, 5-Trichlorophenol
2, 4, 6-Trichlorophenol
Hexachlorobenzene

Diamond sales representatives

(there's one located near you) will be glad to discuss production of other chlorinated products on a custom basis. Perhaps benzene sulfonylchlorides, or their chlorinated derivatives would interest you?

More Diamond products:

carbon tetrachloride; perchloroethylene; methylene chloride; methyl chloride; chloroform; Chlorowax® (chlorinated paraffin); muriatic acid; DDT; BHC, 15% and 40% gamma; Lindane; 2,4-D and 2,4,5-T amine salts, esters and formulations; grain fumigants.

Like more information or technical help?

Simply call your nearby DIAMOND representative. Or write DIAMOND ALKALI COMPANY, 300 Union Commerce Building, Cleveland 14, Ohio.



**Diamond
Chemicals**



ELECTRONIC RUBBER'S LINSE: He's after the rewards of a . . .

Vinyl Maker in a Hot Spot

Despite early promise, polyvinyl chloride hasn't worked out as high-temperature (125 C and above) wire insulation. But research in compounding techniques promises to end this handicap, open the door to a potential \$1-million market in compact electrical appliances that require tough, flexible, low-cost (about 40¢/lb.), heat-stable insulation. Newest candidate for the job is a PVC prepared by Electronic Rubber Co., vinyl compounder, of Stamford, Conn.

Right now, all the firm will reveal is that it uses a combination of polymeric plasticizers, incorporates them into the resin by a "unique" mixing method. But, according to Electronic Rubber's president, Harry Linse, the product holds up under accelerated aging (e.g., 158 C for 7 days), displays the desired dielectric properties. Although his target is stability at 125 C, Linse feels that vinyls for 150 C applications are a distinct possibility.

Major vinyl producers are also probing this prospective outlet for their wares. Firestone and Goodrich have developed likely materials that are now being evaluated by wire manufacturers. And Diamond Alkali, Dow,

Goodyear, Monsanto, and Naugatuck all have heat-resistant vinyls in at least the laboratory stage of development.

One hurdle all the new compounds face is Underwriter's Laboratory approval. Many states and cities forbid sale of electrical appliances and equipment not bearing the UL seal, and most appliance manufacturers will use only wiring that meets UL specifications. So far, UL hasn't set standards for 125 C vinyl insulation* because sufficient test data on the latter have been lacking. But vinyl producers and compounders are fast accumulating the necessary information, expect that specifications can be established within 6-9 months.

Meanwhile, the PVC proponents are seeking better plasticizers to solve their problems. In general, those now commonly used are either too volatile, difficult to compound with the resin, or deficient in desired electrical properties.

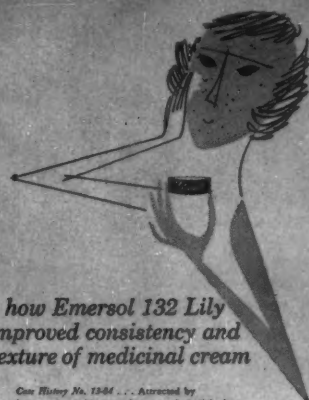
At the moment, the monomeric, high-molecular-weight phthalates and polymeric compounds based on adipic or a combination of adipic and sebacic

*UL only recently approved 105 C vinyl insulation.

Emery Fatty Acids Offer You "proven performance"

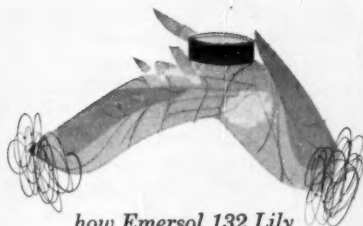
While we have accumulated and published laboratory data showing the superior color stability, oxidation stability, and resistance to rancidity of Emersol Stearic and Oleic Acids, we feel that the real *proof of performance* lies in the experiences of the many manufacturing concerns that use an Emery Fatty Acid.

This collection of advertisements shows a few of the many fields in which the replacement of a competitive material by an Emery Fatty Acid has resulted in a better, more salable product, or a processing benefit. While these end-products may be different from those which you are producing, often the same basic principles apply. We hope, therefore, that these benefits are obvious enough to convince you to try an Emery Fatty Acid in your operation. Since they cost no more than competitive grades, you have *everything to gain*, nothing to lose. So . . . why not order your next requirements, and all your fatty acid requirements from Emery.



how Emersol 132 Lily improved consistency and texture of medicinal cream

Case History No. 1264 . . . Attracted by lower prices, this manufacturer of medicinal creams switched from Emersol 132 to a high-quality hydrogenated solid acid. Immediately, the non-crystalline structure of the latter product reflected in an objectionable change in the texture and consistency of the cream . . . substantially reducing its performance and sales appeal. The switch back to crystalline Emersol 132 Lily eliminated all difficulties.

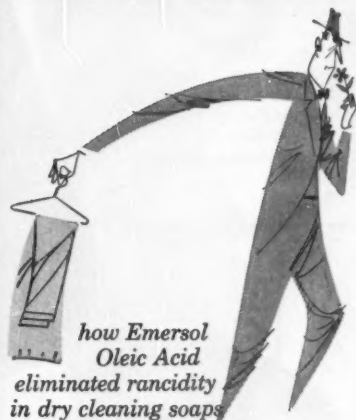
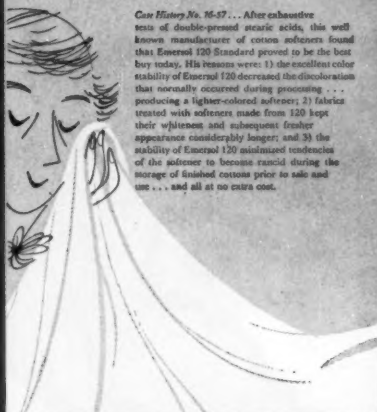


how Emersol 132 Lily gave lighter-colored esters for cosmetics and toiletries

Case History No. 1241 . . . Because of the higher purity associated with lighter-colored products, this well-known manufacturer of esters was approached for lighter-colored monoesters for use in cosmetics, toiletries, and similar type products. Since esters are exposed to high temperatures during manufacturing, this producer's logical approach was to investigate the color stability of his ingredients. On checking various stearic acids, he found that the outstanding color stability of Emersol 132 Lily gave him exceptionally light-colored monoesters, far better than those from all others tested. And since Emersol 132 costs no more than competitive triple-pressed grades, this extra "sales-appeal" cost him nothing.

how Emersol 120 decreased yellowing and rancidity of textile softeners

Case History No. 16-57 . . . After exhaustive tests of double-pressed stearic acids, this well-known manufacturer of cotton softeners found that Emersol 120 Standard proved to be the best buy today. His reasons were: 1) the excellent color stability of Emersol 120 decreased the discoloration that normally occurred during processing . . . producing a lighter-colored softener; 2) fabrics treated with softeners made from 120 kept their whiteness and subsequent fresher appearance considerably longer; and 3) the stability of Emersol 120 minimized tendencies of the softener to become rancid during the storage of finished cottons prior to sale and use . . . and all at no extra cost.



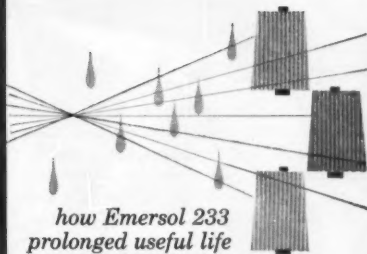
how Emersol Oleic Acid eliminated rancidity in dry cleaning soaps

Case History No. 35-54 . . . To reduce complaints of odor in cleaned clothes, this well-known manufacturer of dry-cleaning soaps evaluated the resistance to rancidity of all available high-quality oleic acids. His tests proved conclusively that Emersol 233 LL Elaine gave his product maximum resistance to rancidity . . . far better than any other oleic acid tested. In this case, not only were "odor" complaints reduced substantially, but an important sales advantage was gained over competitive dry cleaning soaps.



how Emersol 120 increased strength of buffing bars and reduced breakage

Case History 17-41 . . . This well-known manufacturer of buffing bars found that the substitution of crystalline Emersol 120 for a non-crystalline solid fatty acid increased substantially the strength of his bars, thus reducing breakage both during manufacturing and use. In addition to realizing the savings associated with lower breakage, an extra sales appeal of greater safety and economy in use was also gained. Furthermore, he found that the consistent composition and uniformity of Emersol 120 decreased the need for adjusting formulas during processing.



how Emersol 233 prolonged useful life of a fiber lubricant

Case History No. 12-22 . . . A well-known manufacturer of rayon coning oils in which a double-distilled oleic acid was a major ingredient, became aware of the need for a more stable oleic acid because of more rigid aging requirements. This was due to a greatly increased time lapse between the times of manufacturing the oil and of its removal from yarns prior to dyeing. Knowing of our claims for Emersol 233 LL Elaine, he substituted it for the double-distilled grade in his formulation. Prolonged aging tests proved that Emersol 233 LL Elaine increased substantially the resistance of his coning oil to rancidity and yellowing and gave him maximum assurance against product failures . . . even after an abnormally long aging period.

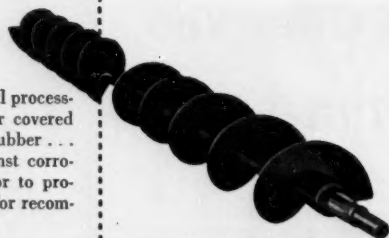
Emery

Emery Industries, Inc.,
Carew Tower, Cincinnati 2, Ohio

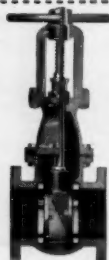
NO SHAPE TOO SCREWY

for ACE Rubber Linings
and Coverings

Most any size or shape of special processing equipment can be lined or covered with quality ACE hard or soft rubber . . . for meticulous protection against corrosion, to resist abrasive wear, or to provide electrical insulation. Ask for recommendations.



STOP VALVE CORROSION at lower cost

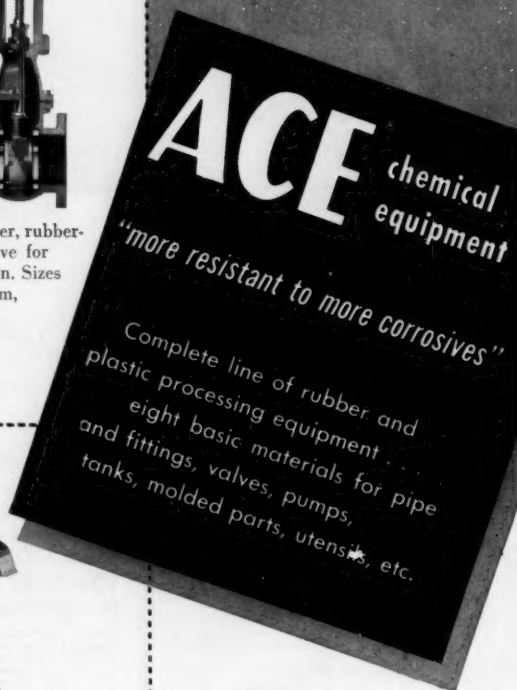


There's an Ace hard rubber, rubber-lined, or plastic-lined valve for every corrosion application. Sizes from 2" to 24". Diaphragm, gate and check types. Free Bulletin CE-52 lists chemicals that can be handled.



FOR HIGH PRESSURES OR BIG PIPE LINES

ACE Rubber-Lined Steel . . . strength and pressures of steel plus chemical resistance of hard rubber. Excellent for alkalis, most inorganic acids, many organic acids, all salts, bleaches. Sizes 1 1/4" to 24" and up. Bulletin CE-52.



ACE SARAN PIPE

An old stand-by with many new uses . . . Odorless, tasteless, general-purpose rigid pipe and semi-flexible tubing. Highly resistant to most chemicals. Threaded pipe 1/2" to 4", tubing 1/8" to 3/4". Ask for Bulletin 351.



ACE rubber and plastic products

AMERICAN HARD RUBBER COMPANY
93 WORTH STREET • NEW YORK 13, N. Y.

RESEARCH

acid are the plasticizers of choice.

But plasticizer manufacturers are lending a hand in the research and there's optimism that the total effort may soon produce the answer. Godfrey L. Cabot (Boston), for example, recently turned up less volatile (than the above) higher-molecular-weight phthalates.

The new insulation's possible boost to an estimated 500-million-lb./year PVC market doesn't assume staggering proportions. But, judging by the research they are doing, vinyl makers must figure that it's well worth trying for.

Conservation Chemical

No novelty abroad, chemicals to check water evaporation are nevertheless strange to U.S. reservoirs. But a group of Texans, taking their cue from successful experiments in Australia and Africa,* now aim to try the principle on their state's reservoirs, hope to eliminate water loss estimated at 7 million acre feet/year.

Named the Southwest Cooperative Project on Control of Evaporation from Reservoirs, the organization was formed at a recent conference held at Southwest Research Institute (San Antonio). Its first goal: to find sponsors for a research project to evaluate relatively low-cost chemical film-formers such as cetyl alcohol that check evaporation, are noninjurious to aquatic life and water quality (for either municipal, industrial or agricultural purposes).

Louis Koenig, SRI vice-president, sees chemicals as an economical means of checking the evaporation of even the lowest-cost Texas water. Total water consumption in Texas is 8 million acre feet/year and its cost ranges from 80¢ to \$30/acre foot.

He calculates that a compound costing 30¢/lb., one pound lasting a month, will cost 80¢ (on the basis of a film 0.0000001 in. thick) to save an acre-foot of water. Cetyl alcohol is currently quoted at 73¢/lb. in 500-lb. lots, but applications last at least a month and possibly as long as 10 years.

Koenig concedes that cetyl alcohol

*Trials of cetyl alcohol, applied as a monomolecular film on reservoirs and dams in Kenya, were conducted this year (*CW*, Aug. 27, '55, p. 18). Earlier tests of the compound by the Commonwealth Scientific and Industrial Research Council in Melbourne, Australia, have turned up "encouraging" results. The U.S. Bureau of Reclamation is also reportedly beginning small lab and field trials of the compound.



it pays to see
VICTOR





PATTY BAKES A CAKE

Now-a-days, little girls of eight or so bake cakes that rival mother's when they use today's wonderful cake mixes. Just add liquid, stir, and into the oven it goes. Victor's complete line of *controlled* reaction phosphates and technical service helped to make many of these new mixes possible. Producers of cake mixes, self-rising flour, self-rising corn meal, and pancake flour, all have benefited from Victor's 57 years of specialization in the field of phosphates.

For information about phosphates that are used by leading mix makers and the milling industry, send for the Victafile listed on the back page.

TIME TO RELAX... EVERY WASHDAY

Washdays are no longer work . . . thanks to the new detergents that contain soil-chasing sodium tripolyphosphate. Today, many of these new detergents contain Victor "tripoly". Tripoly is preferred because it helps remove up to 41% more dirt than cleaning agents compounded without this remarkable phosphate.

The complete list of phosphates used in detergents and soaps is given in the new Victafile. Other industry Victafiles are listed on the back page. *It Pays to see Victor!*



LOUNGE BY HERMAN MILLER

FILL 'ER UP WITH "OXYCHLORIDE"?

Not quite. But if you buy gasoline containing an additive . . . it's quite likely the additive was produced with the help of Victor phosphorus oxychloride. "Oxychloride" is just one of a long list of intermediates that Victor offers the petroleum industry. These "chemical workmen" are used in many other industries, such as in drug synthesis, chemical manufacturing, plastics, and insecticides.

For additional information about Victor intermediates, and other Victor chemicals used in *your* industry, use the coupon on the back.





ELECTROLYTIC BATH REPLACES MUSCLE

Labor for the mechanical buffing of metal parts is costly, slow, and the results lack uniformity. Victor phosphoric acid, in a special bath, does a better job with less labor, and in a fraction of the time. Flat sheets of metal or pieces of intricate design come out of the bath with a brilliantly bright finish. The process works on

stainless steel, copper, brass, and other metals. Bright dipping of aluminum is another short cut to better finishes. This process requires no electric current.

See the back page for the complete list of the new Victafiles available. There's one for *your* industry. *It Pays* to see Victor!

VICTOR CHEMICAL WORKS

155 NORTH WACKER DRIVE • CHICAGO 6, ILLINOIS

New facts about

Victor Chemicals for

your industry

Here's a brand-new concept in chemical literature that's tailor-made for *your* industry. Each Victafile contains complete data on Victor phosphates, formates, and oxalates used in *your* industry. In simple, concise form, each Victafile provides important technical information on the Victor chemicals you can use to cut costs, increase production, or add sales appeal.

Send for your copy of the Victafile edited especially for *your* industry. Just circle the number of the Victafile you want, clip the coupon to your letterhead and mail it today.

**SELECT THE VICTAFILE
FOR YOUR INDUSTRY**

- | | |
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| 1. Agriculture | 9. Leather Tanning |
| 2. Chemical Manufacturing | 10. Metal Finishing and Rustproofing |
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| 4. Detergents and Soap | 12. Paints |
| 5. Flameproofing | 13. Petroleum Products |
| 6. Food and Beverages | 14. Pharmaceuticals |
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| | 17. Textiles |
| | 18. Water Treatment |



Victor Chemical Works
155 N. Wacker Drive
Chicago 6, Illinois

CEP-11

Please send the Victafile for our industry circled below:

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

COMPANY _____

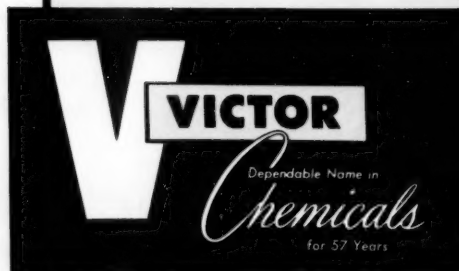
ADDRESS _____

CITY _____ STATE _____

ATTENTION _____

Please send sample of Victor _____

- ☐ We have a particular problem; if there's no obligation, please have technical service representative call.



RESEARCH

is a likely candidate for SRI's proposed research, but he says the institute expects to look for even better compounds. Aside from being reasonably priced, the right chemical should:

- Be capable of forming a thin film having a low coefficient of mass transfer for water.
- Spread readily and replenish itself on a water surface.
- Be nontoxic and noninjurious to animal life.
- Allow oxygen and carbon dioxide to penetrate to prevent the pond from becoming stagnant.
- Allow sunlight to penetrate, but must not be destroyed by sunlight.

Initially, SRI expects its research to be supported by municipalities rather than industry. But if the idea catches hold (there are 2,000 sq. miles of surface reservoir in Texas, requiring an estimated dosage of 300 lbs./sq. mile), the right chemical will have much more than casual commercial importance.

Chromatography Aids: A new catalog from Harshaw Scientific (division of Harshaw Chemical Co.) lists an array of equipment for chromatographic and electrophoresis work. Included: fraction collectors, migration chambers, densitometers, spectrophotometers, etc. Copies are available free from the firm (Cleveland, O.).

Glycerine Kudos: Glycerine research awards for 1955 will be made at the annual meeting of the Glycerine Producers Assn. on Jan. 26 at New York's Waldorf-Astoria Hotel. The prizes are presented annually for original research on the properties and uses of glycerine and derivatives.

Reagent Diluent: A diluent to extend Karl Fischer reagent's usefulness (in moisture determinations) to lower titers (about 1 to 3) is available from Fisher Scientific (Pittsburgh). Titer loss two months after dilution is said to be negligible. Price: \$3.50/qt.; \$11.50/gal.

Mercury Saver: Retrieving spilled mercury is the specialty of a new device from Chicago Apparatus Co. (Chicago) and A. J. Griner Co. (Kansas City). It comprises a wire roller that extends to gather mercury into a pool, retracts to bring it into a receiving tray. Price: \$12.95.

136 thousand manufacturing plants must be right!

In B&O's LAND OF BIG OPPORTUNITIES

Today's industry count in B&O's Land of Big Opportunities is ample proof of industry's confidence in the area . . . and 500 million dollars more invested *this year* in new and expanded plants and equipment underscores area importance for you. B&O has SITES to SUIT! See them *on the ground* . . . or at your desk in 3-dimensional color and airviews.

Ask our man! You can reach him at:

New York	4	Phone: Dlgby	4-1600
Baltimore	1	Phone: LExington	9-0400
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RESEARCH

Homogenizer: For rapid mixing of chemicals in pilot-plant quantities, E. Machlett & Son (New York) offers a new homogenizer called Aero-Seal Chemixer having speeds of 100-10,000 rpm. and a capacity of 0.1-4 liters. Optional equipment: a 1,000-watt three-heat hot plate for maintaining constant temperatures during mixing.

Novel Shield: Adequate lead shielding plus portability is featured by a new well-type scintillation counter offered by the Atomic Center (New York). The shield is comprised of a series of 2-in.-high interlocking rings, each weighing less than 30 lbs. The counter uses a special well-type crystal to accommodate the bottom of a small vial or test tube containing gamma ray-emitting samples (e.g., tagged body liquids, tissues), detects and registers radioactive disintegrations.

Photometer: Phoenix Precision Instrument Co. (Philadelphia) offers its new Brice-Phoenix Universal 1000 Series light-scattering photometer for measuring micro-scattering, micro-fluorescence, micro-luminescence, and very low transmittance and reflectance of dark materials. According to Phoenix, the device facilitates weight-average molecular weight determination of high-molecular-weight compounds.

Protein Separator: Flexibility and efficiency are claimed for a new continuous-flow paper electrophoresis apparatus made by the Spinco division of Beckman Instruments (Belmont, Calif.). Under test for the past two years, the unit is manufactured under U.S. Pat. 2,555,487. It is applicable to separation of proteins, polypeptides, amino acids, dyes, and intermediates. In special cases, nonpolar substances such as carbohydrates can be separated. Features: easy disassembly for cleaning; throughputs up to 8 ml/hr. for large samples.

Performance Check: Photovolt Corp.'s (New York) electronic pH meter tester Model 25 is newly available for checking pH meter performance. The device is said to facilitate maintenance and service of the meters, requires neither electrodes nor buffers. Price (for 100-130 volt 40-60 cycle AC): \$48.

CHEMICALS OUTLOOK

January, 1956



This news bulletin about Wyandotte Chemicals services, products, and their applications, is published to help keep you posted. Perhaps you will want to route these and subsequent facts to interested members of your organization. Additional information and trial quantities of Wyandotte products are available upon request . . . may we serve you?

MONOLENE SPEEDS CURING OF EPOXY RESINS

Monolene*--a new organic product recently announced by Wyandotte --has been found to serve as a rapid-curing agent for epoxy resins. It possesses several advantages over some of the commonly used alkyl diamines, in that maximum exothermic temperatures during curing are lower . . . there is less bubble formation . . . resins of lighter color are obtained.

A clear, white to light yellow liquid with medium viscosity, Monolene --N-(2-hydroxypropyl) ethylenediamine--will be of interest to those concerned with the reactions involving primary and secondary amine groups, as well as secondary hydroxyl groups.

In addition to its use in epoxy resins, Monolene may be used as an intermediate for the preparation of cationic surface-active agents and resins . . . and may also have application in the production of dyestuffs, textile-finishing compounds, insecticides, and oil additives.

QUADROL ALSO AIDS CURING OF EPOXY RESINS

Quadrol*--N,N,N',N'-tetrakis (2-hydroxypropyl) ethylenediamine --is also of interest in the curing of epoxy resins. Although Quadrol itself is not a curing agent when catalyzed by amines, it can be used to modify the reaction rate.

With alkyl diamines, Quadrol accelerates the curing rate, producing lower maximum temperatures than when diamines are used alone. However, with alkylol diamines, Quadrol retards the curing rate. Maximum temperatures obtained are again lower than when Quadrol is not used. At high concentration, Quadrol acts as a plasticizer. (In laboratory tests, Quadrol was used at concentrations of 73% by weight of resin without causing any undue softening of the cured resin.)

Where toxicity is of particular interest, it can be noted that Quadrol's acute oral toxicity for an LD₅₀ is 3.2 grams per kilogram. In aqueous solutions, Quadrol exhibits only slight irritational characteristics to skin and eyes. In neither case did the results of tests indicate that permanent damage will develop.

For technical data and samples of Monolene or Quadrol, write us on your company letterhead.

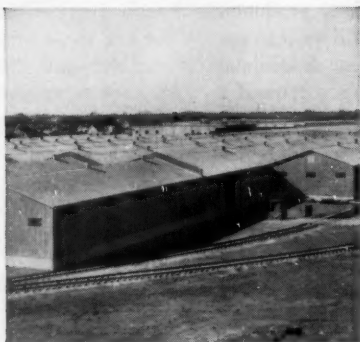
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RESEARCH



Advance Base for Pyrethrum Push

TO HOUSE pyrethrin studies, Kenya (East Africa) pyrethrum flower growers recently built the \$70,000 headquarters and laboratories (above) at Nakuru. First of its kind in Africa, the facility spearheads expansion plans for the British colony's \$2.8-million pyrethrum industry (*CW*, June 25, '55, p. 30). Staffers test 12,000 flower samples/year for pyrethrin content in order to gauge the crop's market value. In addition, they probe for new uses and forms of the insecticide. Inspecting the new lab (below) are Kenya's governor, Sir Evelyn Bar-

ing (left), and J. B. Furlong, scientific advisor to the Pyrethrum Board of Kenya, governing body of the industry. Also present: the colony's minister of agriculture, Michael Blundell, who revealed plans to build a \$560,000 pyrethrin extraction plant at Nakuru. Members of the board will tax their produce to raise half this sum. Their optimism stems from surging markets. World pyrethrin consumption rose from 15 tons in 1933, to 6,000 tons 10 years later. According to Baring, world sales are expected to reach 13,000 tons/year in 10 years.



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Caption	Dowanol 7 Ethylene Glycol Methyl Ether	Dowanol 8 Ethylene Glycol Ethyl Ether	Dowanol 10 Ethylene Glycol n-Butyl Ether	Dowanol 16 Diethylene Glycol Methyl Ether	Dowanol 17 Diethylene Glycol Ethyl Ether	Dowanol 19 Diethylene Glycol n-Butyl Ether
Chemical Name						
Specific Gravity @25/25°C.	0.963	0.9275	0.899	1.018	0.9855	0.952
Boiling Range 5-95% @760m.m.Hg °C °F	123-126 254-258	133-136 271-277	166-173 330-343	189-195 372-383	197-203 387-397	225-233 437-450
Viscosity CPS@25°C	1.532	1.838	2.83	3.467	3.780	4.92
Flash Point °F (COC)	125	110	160	210	205	225
Dilution Ratio: Toluol L.D. Naphtha	4.0 0.3	5.2 1.1	3.3 1.8	2.3	1.9 0.2	
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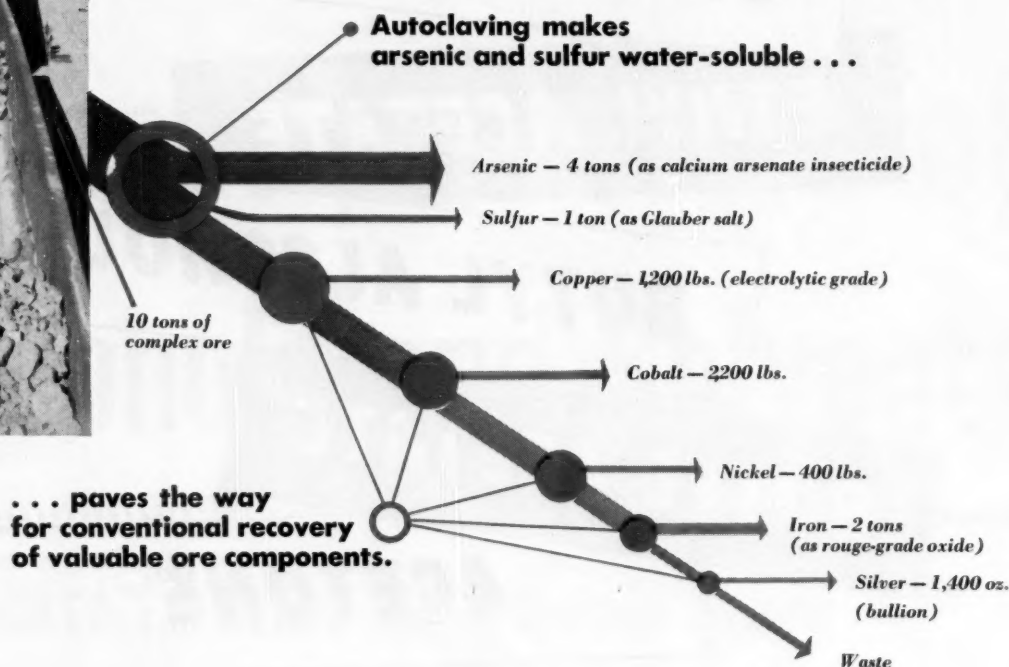
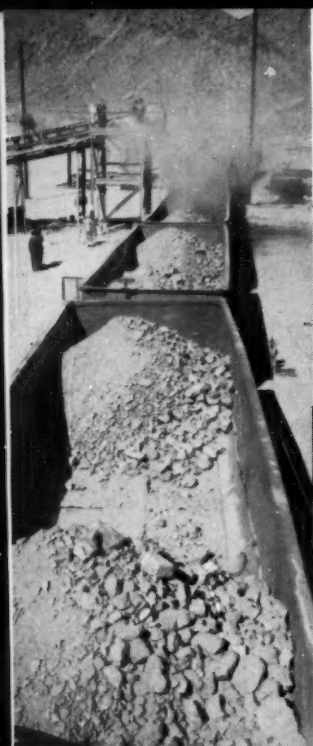
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PRODUCTION . . .

SILL PROCESS OF TREATING COMPLEX ORES



Pressure Cooker Turns Poor Ore to Pay Dirt

The Sill process (see above) of recovering cobalt from low-grade ore moves closer to its commercial debut this week as Metallurgical Resources, Inc., gets set to close contractual negotiations for a pilot installation. The company is engaging an engineering firm to design and build a 10-ton/day plant in the New Jersey metropolitan area. If construction gets under way in April as scheduled, the plant is expected to be ready to operate sometime around November.

Though the process was developed primarily for the recovery of cobalt from complex ores, especially those with high arsenic and sulfur contents, it's not limited to that. In fact, a large share of the pilot operation will be devoted to the investigation of the commercial feasibility of recovering other metals—copper, nickel, iron—commonly found in cobalt ores.

Inventor Harley Sill, a California consulting metallurgical engineer, has literally lived with the process for several years, often sleeping on a cot in the lab during long experimental runs. He started working with ores from the Cobalt, Ontario, area, soon settled on hydrometallurgical methods as the most suitable means of reducing unusually high impurity (as much as 40% arsenic, 10% sulfur) content. Says Sill, this route not only limits impurities to less than 2%, but also avoids the problems of controlling the poisonous air pollutants that result from pyrometallurgical treatments.

Close Control: Key to efficient elimination of impurities is a unique leaching operation that dissolves arsenic and sulfur almost completely. Once these have been made water soluble, they're easily separated from the other components of the ore. But,

until the final patents come through, MR isn't saying much about this vital step, except that it's done in an autoclave under closely controlled conditions of temperature and pressure.

The Sill process isn't the first to use a leach for the removal of cobalt ore impurities. Chemical Construction Co. (New York) and Sherritt Gordon have worked up similar processing systems at Howe Sound's Garfield, Utah, refinery (*CW Technology Newsletter*, Dec. 17, '55), as well as at plants of National Lead Co. and Sherritt Gordon. But unlike the others, which utilize either an acid or an ammonia leach, the Sill process employs an alkaline leaching medium.

In addition to removing arsenic and sulfur from the metal values, Sill has worked out methods of recovering them as useful by-products. Arsenic, coming off as a soluble so-

dium arsenate, can be precipitated by the addition of a lime to form calcium arsenate, which can be used as an insecticide and for similar applications. Sulfur can be recovered as Glauber salt.

By reducing impurities to less than 2% (actual tests have yielded as low as 0.2% arsenic, only a trace of sulfur), the leaching operation clears the way for conventional recovery of the metal values. Copper, the first to be removed, is dissolved in acid and precipitated as high-purity electrolytic-grade metal. Next, cobalt is dropped out by the addition of sodium hypochlorite or chlorine — both cheap ingredients. Last to come out is the nickel, which can be easily precipitated with sodium hydroxide.

Iron, which is usually discarded, can be recovered as rouge-grade oxide, if economical. And the recovery of silver is a simple job, says Sill, after the other metals have been stripped from the leach product.

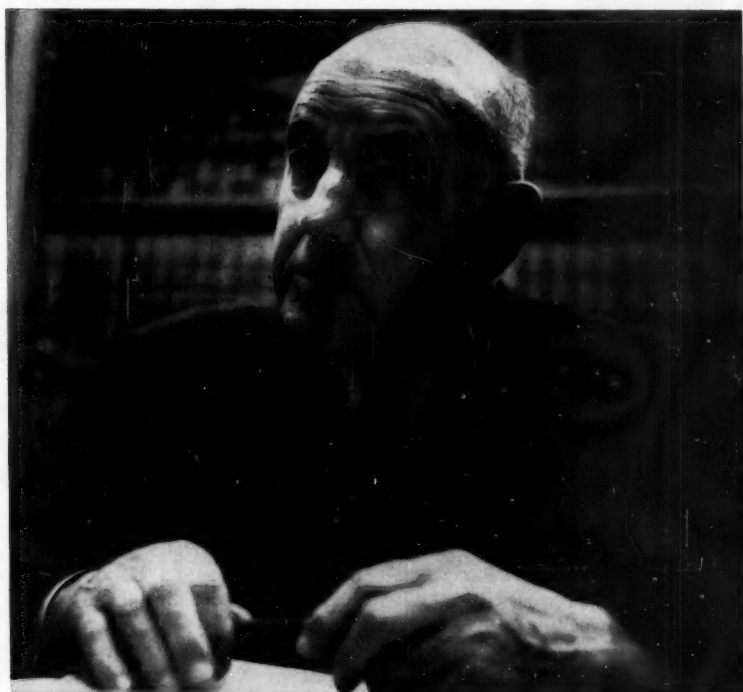
For example, with a typical ore containing 140 oz. of silver per ton, silver content had increased to 2,800 oz./ton by the time ore volume had been reduced from 10 tons to 1,000

lbs. Silver can be recovered as bullion by melting with borax glass and carbonate, silicon present passes off in the slag.

Other Targets: Though economic recovery of the various metals in complex ores depends on many factors, MR's pilot plant will be set up to work out whatever systems are required. And, in addition to concentrating on the treatment of cobalt complexes, the company plans to investigate patent variations that may adapt the process to other types of complex ore.

Sill is currently working on North Carolina lithium ores, says the process can be adapted to either spodumene or lepidolite. And it may also find application with tungsten ores (wolframite and scheelite), particularly if they're high in arsenic content.

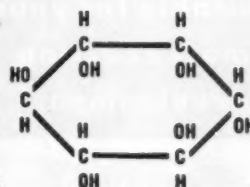
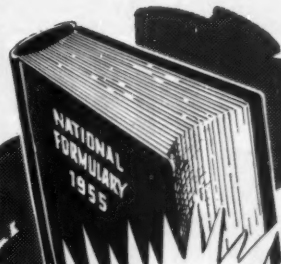
Though the Sill process is viewed favorably by several experts, its promising possibilities alone aren't enough to guarantee commercial success. It will also require a lot of equipment and materials engineering. And that's the job to be done in MR's pilot plant.



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PRODUCTION

Ions and the Atom

That ion exchange has played an important role in the atomic energy program has never been much of a secret. But the size of the contribution has never been delineated. As the Gunnar Mines Ltd. operation at Uranium City, Saskatchewan, hit capacity production last week, however, Henry W. Foulds, president of Permutit, revealed some figures that help to form an estimate.

Outside of water treatment, he reports, the largest use of ion exchange materials today is in extraction of uranium ores from acid leach solutions.

There are currently more than 20 installations throughout the world that are producing uranium oxide "on an

impressive scale" through the medium of ion exchange. In addition, he said, more such plants are either on the drawing boards or being built.

The largest of these installations employs 45 ion-exchange columns. And that's a big operation even for a water treating plant.

One in Reserve: Most of the columns run 7-8 ft. in diameter and are 12 ft. tall or more; bed depth averages about 5 ft. This is how the unit operation fits into uranium processing:

The pregnant acid leach solution is sent through two columns in series. (Retention time varies between 1.5 to 5 minutes, although it can be longer.) Most of the ions are taken up in the first column; the second serves as a scavenger for leakage of uranium ore from the first. When the first column



How Much Did It Pump?

CHEMICAL ENGINEERS at the Chem Show who tried their luck at estimating the volume moved by Philadelphia Pump's duplex pump (equipped with a Link-A-Trol mechanism for varying stroke) were able to come within a drop of actual gallonage. By closing

time Friday, the pump moved 377.-250 gal. The winners of the contest: I. J. Kail (National Aniline) and O. K. Roe (Eli Lilly), who guessed 375.000 and 379.536 gal., respectively. They'll receive "fruit-of-the-month" packages for a year as prizes.



for fruit and vegetable growers.

NEW HELP ON BACTERIAL BLIGHT



Recent greenhouse studies by scientists at Merck & Co. Inc., show that addition of Glycerine to streptomycin sprays increases the effect of the antibiotic against bacterial blight of beans, a disease which costs farmers millions of dollars each year.

Researchers believe the increased effectiveness of the combined spray comes from Glycerine's ability to retain moisture on leaves, and in so doing, to improve absorption of streptomycin by the plant.

Indications are that the Glycerine-streptomycin combination will also help control other disease-causing organisms which infect leaves, flowers and stems of various fruits and vegetables.

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PRODUCTION

is exhausted, it's removed from the stream for elution.

The second column is then fed the pregnant solution, while a third is used as the scavenger. Thus, two columns are continually being loaded while ions are being eluted from the third.

The basic technique using ion-exchange resins in getting uranium ore from the acid leach solution was worked up for the Atomic Energy Commission at Oak Ridge, Battelle Memorial Institute and the MIT metallurgical lab during 1949. By Feb. '51, it was advanced enough for the South African government (and the AEC) to adopt it in recovering uranium from gold slimes. Then, in Sept. '52, the first installation (12 columns) was placed in operation. Said expert witness Foulds: The speed with which these tremendous plants were designed, installed and placed into operation is a tribute, indeed, to the engineering proficiency and business skill of all those associated with these projects.

EQUIPMENT

Corrosion Kit: Now you can check the corrosion-resistant qualities of tantalum in your production or pilot installations with a test kit from Fansteel Metallurgical Corp. (North Chicago, Ill.). Offered at no charge to production, pilot plant, and research technicians, the kit includes two pieces of 0.02-in.-thick tantalum sheet, one length of 0.03-in. tantalum wire.

New Hose: Manhattan Rubber Division, Raybestos-Manhattan, Inc. (Passaic, N.J.), has made two additions to its R/M line of hose:

- Allflex all-purpose hose features mandrel-made, horizontal braided construction suitable for use with air, oil, water, and mild chemicals.

- Super-Master BW Air and Super-Master BW Water are high visibility hoses of braided wire construction for extra safety at pressures to 2,000 psi. A neoprene tube that withstands hot oil from compressors, and a bright yellow cut-resistant cover provide maximum visibility, long hose life.

Spray Coater: KiPlaGun is Kish Industries, Inc.'s (Lansing, Mich.) tradename for new equipment to spray plastic resin coatings. Outstanding features: an electrically heated ele-

ment for maintaining proper spraying temperature, a special mixing nozzle, a metering device for positive proportioning of material. Used with KI's Kiplakote spray resins, it's said to adapt well to laminating with glass cloth, as well as to application of protective coatings on metals and wood.

Electric Furnace: Auto-Control Laboratories (Culver City, Calif.) is out with a new line of high-temperature electric furnaces. Dubbed Thermocal, the units offer several safety features, and an all-in-one automatic controller-pyrometer capable of regulating temperature to within 1%. Six models, ranging in size from 4x4x4 to 8½x8½x17 in. (inside), operate on 115-220 v. ac, provide temperatures to 2200 F, continuously, or to 2300 F, intermittently.

Inspection Kit: To facilitate magnetic particle inspection in chemical and petroleum processing plants, Magnaflex Corp. (Chicago) offers its portable YM-5 Yoke Kit. The unit utilizes a powerful Alnico magnet to permit preventive maintenance inspections in locations where electric power is unavailable, or in areas where arcing of conventional equipment would be a fire hazard. Kit comes complete with spray gun, two powder guns, and wet-bath and dry-powder magnetic-particle materials.

Poly Prices: The range of prices on American Agile Corp.'s (Maple Heights, O.) fluidized polyethylene coating equipment is not \$100-\$175, as previously indicated (CW, Dec. 3, '55, p. 93). Says Agile, its 8-in.-diameter lab model sells for \$156; 18-in.-diam. pilot-plant model and 30-in.-diam. production model will be available later at about \$200 and \$350-\$400, respectively.

Dripless Tap: A flashproof stainless steel faucet for use with volatile and flammable solvents or other hazardous liquids is now available from Economy Faucet Co. (Newark, N.J.). Construction limits all frictional contacts to Kel-F plastic seal rings, eliminates metal-to-metal contact, and provides no-drip shutoff action.

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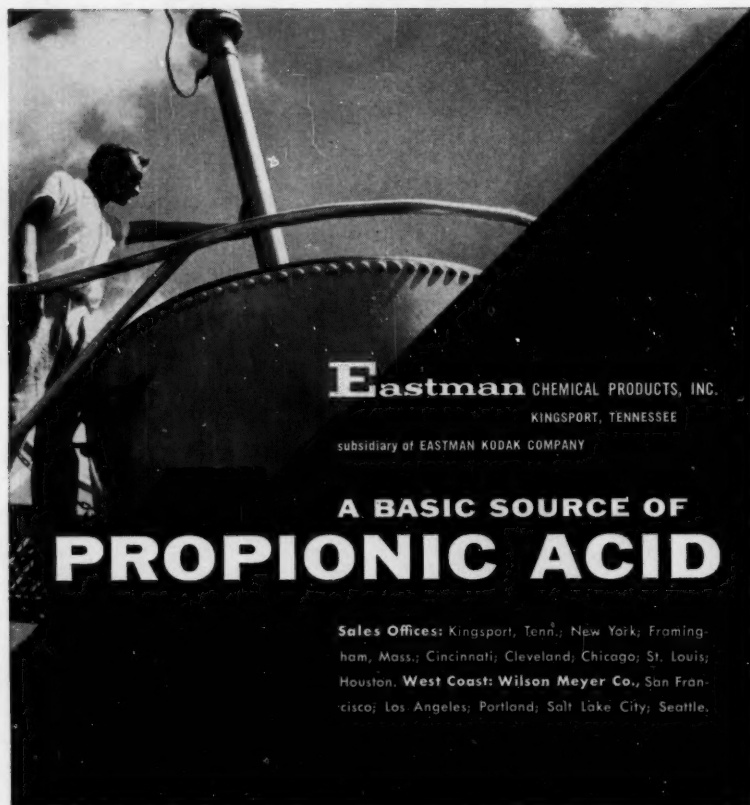
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All of these Shares having been sold, this advertisement appears as a matter of record only.

NEW ISSUE

December 16, 1955

18,035 Shares

Cavitron Corporation

Common Stock
(Par Value \$0.10 per Share)

Price: \$16.50 per share

Copies of the Offering Circular may be obtained from the undersigned.

SCHUSTER & CO., INC.

44 Wall Street

New York 5, N. Y.

PRODUCTION

and types of packing, Flexrock Co. (Philadelphia) has developed process packings that provide leakproof seals to fit any size or shape of stuffing box or fitting. Packings are made in two formulations, and in coil, spiral, shredded or bulk form.

Salt in Plastic: International Salt Co., (Scranton, Pa.) is now turning out Lixators, evaporated salt dissolvers, and brine storage tanks made of glass-reinforced polyester plastic. The units are said to completely eliminate corrosion problems, permit direct viewing of salt level.

Hard Facing: Corrosion-, heat- and abrasion-resistance can be imparted to acid pump parts and other chemical equipment, says Wall Colmonoy Corp. (Detroit, Mich.), by the application of its new Colmonoy No. 70 hard-facing alloy. Originally developed for jet engines, the nickel-chromium-boron-tungsten material melts at around 200 F, provides surfaces hardness of 50-55 Rockwell C. It's available as a powder for spray welding application, or as $\frac{3}{16}$ - to $\frac{3}{8}$ -in. welding rod for oxy-acetylene torch application.

Level Control: Machinery Electrification, Inc. (Northboro, Mass.) has come up with an electronic liquid-level control that features adjustable sensitivity. Designated the MEK-3001A, it's suited to pump-up, pump-down, or constant-level service; will monitor any process liquid with resistivity between 0-2 million ohms/cc.

Water Supply: By utilizing heat that's normally lost in jacket heat, lube oil, and diesel exhaust, Cleaver-Brooks Co.'s (Milwaukee, Wis.) new waste heat evaporator can turn sea water into fresh water for 33¢/1,000 gal. Operated at less than atmospheric pressure to prevent scaling, the four-stage unit will produce 1,500 gph. of pure distillate on less than 80,000 Btu./minute of waste heat.

Outside Protection: M. W. Kellogg Co. (New York) now puts out Kel-F dispersions in a special formulation for coating outside chemical storage tanks. Applied by spray, dip or spread methods, it bakes to a continuous coating that has both high-temperature resistance (to 400 F) and low-temperature flexibility.

TESTS PROVE it pays to use coatings formulated with BAKELITE resins

salt water tests prove coating's superiority

Coatings used in this test are based on
BAKELITE Vinyl Resins and formulated
by Briner Paint Mfg. Co., Inc.,
Corpus Christi, Texas.

These test panels were taken from a floating test rack in Corpus Christi Bay after 9 months of exposure. The lower portions were continually submerged in sea water, while the upper areas were alternately wet and dried by a 12 to 18 mile per hour wind. The panel on the right, coated with conventional marine bottom paint, became heavily encrusted with marine growths. The panel on the left, virtually free of any organisms, is protected with coatings based on BAKELITE Brand Vinyl Resins.

These tests, and hundreds others, show that there are large savings in increased service life and reduced maintenance costs with coatings based on BAKELITE Resins. Properly applied, experience shows that they are tough,

durable and tenacious, resisting acids, alkalis, weather and temperature extremes and other destructive agents.

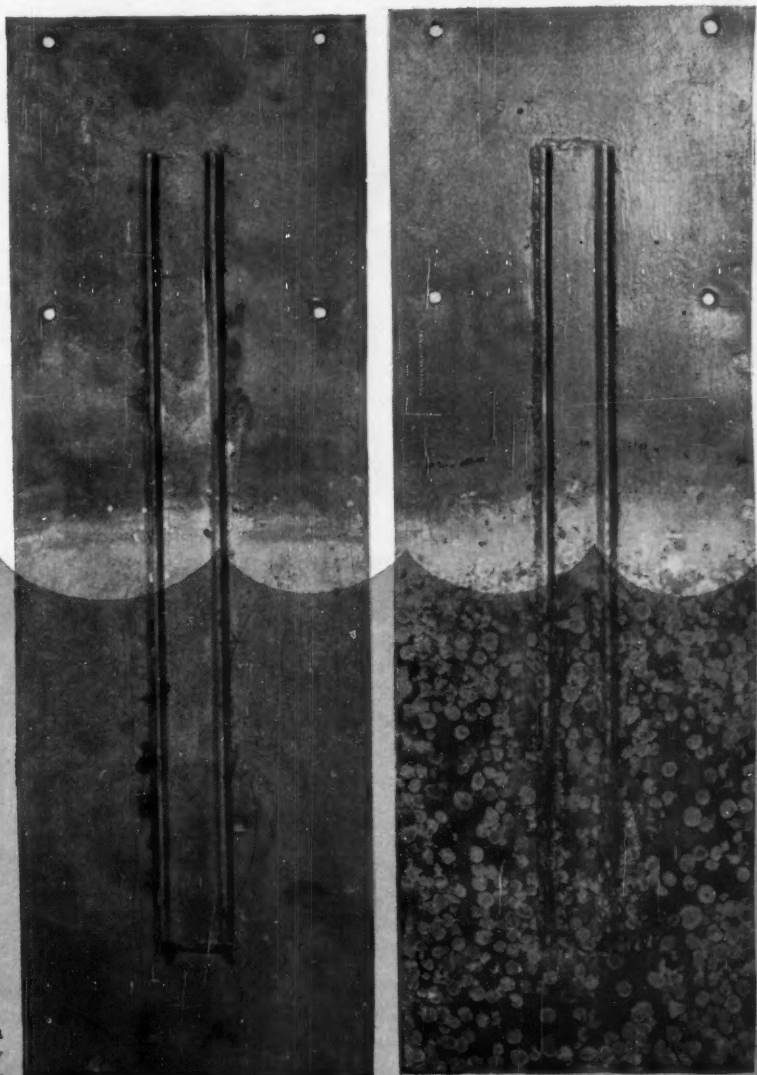
Whatever your problem in protective coatings for equipment, packaging, buildings or products, rely on coatings based on BAKELITE Brand Resins. For names of suppliers, and a free copy of our booklet, "BAKELITE Resin Coatings for the Chemical Industry," write Dept. LV-34.

See Bakelite Company Exhibit at National Association of Homebuilders Exposition, Chicago Coliseum, Space #828-829, January 22-26, 1956.

Vinyl, Phenolic and Epoxy Resins, and Styrene and Vinyl Acetate Latexes for Coatings

BAKELITE COMPANY, A Division of Union Carbide and Carbon Corporation UCC 30 E. 42nd St., New York 17, N. Y.

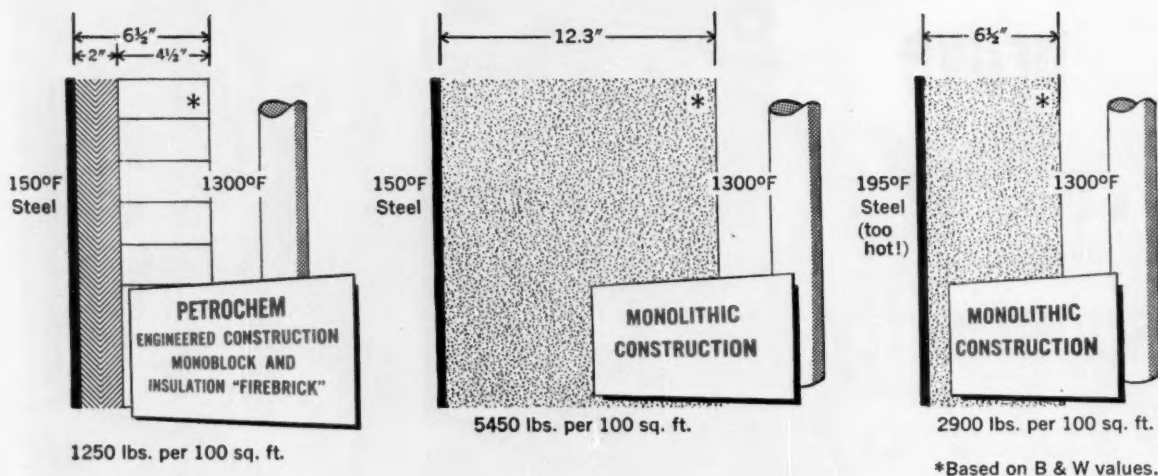
The term BAKELITE and the Trefoil Symbol are registered trade-marks of UCC



In furnaces as in processes compare the design to judge the advantages

As an example:

The wall construction of all Petrochem-Isoflow Furnaces is designed for 150°F maximum outside shell temperature.



The Petro-Chem design provides a thoroughly engineered wall construction. It is built with two tiers of monoblock supported on 18 inch centers and a circular arched wall of insulating firebrick. The inside of the steel shell is protected from the possibility of corrosion by a one-eighth inch thickness of Staylastic cement. This type of construction, independently supported monoblock and the circular arch of firebrick, bonded with Smoothset mortar, assures optimum efficiency and minimum maintenance.

The use of monoblock and insulating firebrick laid as a circular arch provides many advantages over a one-piece monolithic lining, including:

1—Low weight, 2—Low heat conductivity, 3—High hot crushing strength, 4—Low expansion coefficient, 5—Resilient compressible backing, 6—Long life, 7—Nil maintenance.

Also, this construction has low heat storage capacity, speeds both heating and cooling. Its light weight requires less concrete foundations and steel supports.

Compare and your judgment will affirm
Petrochem-Isoflow Furnaces are Most Efficient by any Comparison

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Technology

Newsletter

CHEMICAL WEEK

January 14, 1956

Where will Grace build its polyethylene plant? Newspaper reports of last week to the contrary, the firm has not yet reached a decision. The news stories said that the firm had taken three land options in Louisiana, would locate its plants on one of them. Actually, although the firm does have an option on one site in the state, it has not committed itself.

You can lay odds, however, that the plant will end up somewhere in the Gulf Coast area.

Grace earlier considered other sections of the country. Two sites in New Jersey, for example, were carefully scrutinized. This was the theory: nearness to the heavy concentration of polyethylene users in the New York metropolitan area means that a producer has no freight charges, therefore can afford to pay more for his raw material (*CW, Technology Newsletter, Oct. 1, '55*).

But Grace will employ the Phillips process. And that (*CW, May 14, '55, p. 101*) is thought to be carried out in the presence of a solvent (e.g., octane or pentane). Driving off the solvent pushes steam costs to the point where the price paid for fuel could become as important as the raw material charges. Grace, for one, seems unable to resist the cheap fuel, cheap ethylene and other lures of the Southwest.

An important field to watch in the treatment of cancer is the use of viruses. Two viruses have been tried at Memorial Hospital, N.Y. Results until now, though sketchy, have been labeled "promising." They've been so promising, in fact, that several viruses will be tried on human cancer patients soon.

One virus that has been under investigation has been named Egypt 101. The other's name is still secret.

Because they've learned quite a bit about the specificity of cells and chemicals, scientists have been able to grow the two viruses in (cultures of) human cancer cells—rather than in animals. This, they feel, is a good sign. They've also been able to alter and improve the viruses. The big test now is to determine whether the viruses that work on cancer cells in the test tube are just as effective on cancers in the body.

The goal of "full-employment" for the atom in chemical processing received both a boost and a blow last week:

- The Alberta Research Council found that radioactive steel balls removed a major defect in the otherwise feasible "hot-water" method of getting crude oil from tar sands. The problem was to find an equation that could be used to determine the time it takes for the sand to settle out of the oil-sand emulsion. Knowledge of settling time is critical: if the oil is placed in pipelines too soon, some sand is included; if there's a delay in getting oil into the pipes, production losses could result.

Tests using the radioactive steel balls provided data to work up a satisfactory equation. The same technique could be useful in operations involving the handling of heavy oils, too.

- The blow came in the form of a frank opinion voiced by Leonard Reiffel, supervisor of nuclear physics at Armour Research Foundation. Said he: Sterilization of foods by nuclear radiation is not just around the corner. He admits that radiation kills the bacteria. But he adds: "Radiation-sterilized foods taste, smell and look terrible."

While he doesn't hold out much hope for complete sterilization that way, Reiffel does see a big, rosy future for radiation pasteurization—killing

Technology Newsletter

(Continued)

most, rather than all, bacteria with radiation. This, in conjunction with refrigeration, he thinks, will be an important advance toward more efficient utilization of foods. It will be tried out on some products this year.

If you're running or planning to run a nuclear facility, your operators will now have to be licensed by the Atomic Energy Commission. The term operator, however, does not necessarily mean the man who actually turns the valves. It's defined as the one who directs the manipulation of controls. Details of the licensing (which involve an operating test and written test) are spelled out in the *Federal Register* dated Jan. 4.

Two new herbicides will have wide commercial possibilities if they live up to limited field test results. They're 4 (2,4-DB) and 4 (MCPB), close chemical relatives of 2,4-D and MCPA, respectively. In pre-emergence spraying, they promise less damage to corn, cotton, soybeans, peanuts and sorghum than present herbicides. They also seem attractive for post-emergence spraying.

Plants for recovering sulfur from hydrogen sulfide will be able to buy a mass spectrometer and pay it off in less than a year with the savings resulting from a more efficient operation. That, at least, is the claim being made by Consolidated Electrodynamics Corp. (Pasadena), based on its just-completed plant-scale study at a Los Angeles refinery.

The refinery's sulfur plants burn hydrogen sulfide in the presence of air to produce sulfur dioxide as an intermediate. The dioxide reacts with more sulfide to yield elemental sulfur and water. If you don't employ the right ratio of air to sulfide, you not only have an air pollution problem on your hands but also you send sulfur up the stack. By the system now in force, the ratio of air to feed gas is controlled. But the hydrogen sulfide content of the feed gas varies. And that's where the mass spectrometer comes in.

The study by CEC revealed that the 40-tons/day unit in the refinery was sometimes wasting sulfur at a rate of 17 tons/day. The average loss it pegged at 1.2 long tons/day. By keeping close tabs on the operation, the mass spectrometer could eliminate this loss. The savings in sulfur at the plant investigated, CEC estimates, would be sufficient to pay for the instrument in 314 days.

Another link in the ever-lengthening chain of knowledge of brain chemistry has been forged by Abram Hoffer, director of psychiatric research at University Hospital (Saskatoon, Canada). He found that adrenolutin, an adrenalin derivative, triggers "marked thought disorders." When administered to normal people, it brings on symptoms typical of schizophrenia temporarily.

This means that, in some cases, schizophrenia may be directly attributable to the presence of abnormal amounts of adrenolutin (or a related compound) in the body. In any case, it is believed that this line of attack—pinpointing the cause of disorders—will facilitate the development of drugs to treat specific mental maladies (*CW*, Dec. 17, '55, p. 78).

Allied this week is revealing that its Syracuse plant for making hydrogen peroxide by its own, nonelectrolytic process is in operation. Fed by cell hydrogen, the process is an auto-oxidation, a descendant of the old I. G. method. Allied, however, calls it the most modern yet developed. That makes the third nonelectrolytic hydrogen peroxide maker (*CW Technology Newsletter*, Nov. 5, '55).

Announcement

Cyanamid Now in Commercial Production of ACRYLAMIDE

American Cyanamid has been encouraged to increase production of acrylamide as a result of the diversified uses being developed for this basic intermediate. Now—with commercial quantities of acrylamide obtainable from Cyanamid—a source of supply for this highly reactive monomer and intermediate is assured. Cyanamid's high quality acrylamide has stability without the use of inhibitors.

Promising applications of acrylamide have been found in many chemical and processing industries, among which are:

Adhesives
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Plastics
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Surface Coatings

Synthetic Leather
Textiles
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*Available from American Cyanamid Company,
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Please send me:

- ☐ Product Bulletin on Acrylamide
- ☐ Sample of Acrylamide
- ☐ Price Information

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Position _____

Company _____

Address _____

SPECIALTIES

PAPERWORK: Inventor Gibson files application to have his idea 'aired.'



WEED-OUT: Producer Donn Bennett evaluates the sheaves of applications . . .

Invention to Production; TV Opens the Way

When the Thomas Alva Edison Foundation looked last month for a way to promote inventiveness, it turned to a television show. The need in this case was for an organized method of bringing inventors and manufacturers together—till now largely a hit and (too often) miss affair.

As have some 33,000 inventors looking for manufacturers, and 12,000 manufacturers looking for ideas, the Edison Foundation contacted Donn Bennett Productions, Inc.'s (Philadelphia) video showcase for inventions: "The Big Idea." Inventors in virtually every field have demonstrated their ideas on this show since it went on the air in 1949.

One specialty inventor getting a boost from "The Big Idea" was George Gibson, whose specialty Rustoff (a liquid rust-stain remover for textiles) was displayed not long ago. *CW*'s camera followed Gibson and "The Big Idea" crew as it prepared and presented the public with further evidence that ingenuity isn't a lost talent in the U.S.

Up or Out: Preservation of this bit of Americana—the independent inventor—is important for more than sentimental reasons. He is a very necessary factor in the small specialties makers' ability to keep in the fight with big competition.

The constant search for ideas is one of the most vital forces in the fast-moving specialties field. Explains Viking-Sloane Corp. (New York), which has just hired an engineer whose full-time job is to find and develop new additions to the line: "If you don't keep bringing out new products, you're on your way out of business."

Research or Search: Although most new specialties are products of company research labs, those of the small firms—which seldom have labs—usually must be "borrowed" from the open market.

Even lab-equipped companies, however, find that it pays to keep a keen eye open for opportunity, wherever it may be. Typical is the Hollingshead Corp. (Camden, N. J.), which bought from individual inventors 10 of the



REHEARSAL: Bennett discusses the plans with each inventor



... Some are picked for the show. Bennett briefs them (Gibson third from left) on the procedures of the production.



Harold Gibson demonstrates Rustoff in detail—he has a few hours before the show hits the air.



SHOWTIME: Cameras are on another inventor as Gibson readies display.



ON THE AIR: The camera moves in for close-up as specialty inventor Gibson demonstrates his product.

nearly 100 patents it has obtained since the war (roughly half of which were for new products).

A substantial number of firms place their greatest reliance on keeping potential inventors aware that they're eager for new products; advertising, of course, is a key way to keep a firm's name in the public eye. It pays off—one firm reports that this technique keeps ideas flowing in at the rate of 50/month.

In the Hole: But if manufacturers have problems, inventors have as many, and inventors' problems have a certain element of desperation about them.

By the time he is ready to sell, the inventor has already invested at least \$1,000—a considerable sum to most of them—on patent search and model. As often as not, the inventor has no really good idea of what he should do next.

Taking over the selling function is the job "The Big Idea" producer and moderator, Donn Bennett, has set for himself. After presenting the invention on the show, Bennett's real work begins—when he tries to help the inventor sell it. He keeps a vast file of submitted ideas, which he makes available to interested manufacturers*;

*Some specialty examples: Trisolviadene, a process of preparation and anodic treatment of light metals; Cure, a liquid hosiery rinse for nylon stockings; a pH indicator made from the juice of a berry; a deinking process based on chemicals only (no special machinery); Rub'N' Rinse, a silver-cleaning cloth; Check, an all-purpose detergent and cleaning fluid; Safety Bilge, applied to boat bilges to render gasoline and oil nonexplosive, nonflammable.

he handles inquiries about participants on the show, and contacts likely companies about buying inventions.

Busy when "The Big Idea" was simply a local program in Philadelphia, Bennett has recently increased his activity many-fold by adding a film version that is shown across the country.

The network show takes the cream of the participants in the local show and gives them a considerably more elaborate production.

Referee: The most crucial and often the most difficult and hazardous part of the work comes at the actual negotiations, which Bennett sometimes sits in on.

He helps the inventor to sell his idea, advises him on whether the offer

he receives is reasonable or not, and tries to persuade the inventor to take it if it is.

Like many people who deal with inventors, Bennett reports the hardest problem is fighting the exaggerated hopes of riches the idea men seem to have.

Conditioned by a years-long tradition of "get-rich-quick" anecdotes (and sometimes by over-enthusiastic patent attorneys), inventors sometimes expect one idea to set them up for life.

Another common cause of negotiation breakdown is the inventor who wants to hear all offers before deciding on one, no matter how attractive. More than once, Bennett reports, this attitude has infuriated an interested manufacturer into dropping out.

Clearing House: All these difficulties, as might be imagined, make the flow of ideas from the individual to the manufacturer a rather slow and tedious business, compared with the flow from research lab to production. It may well be that this has as much as anything to do with the private inventor's relatively small role in modern industry.

"The Big Idea" has made an attack on the problem, and has done much toward calling attention to the need. This last is possibly its greatest contribution to the chemical specialties industry—not 1 in 10 of the show's big ideas falls in the plain chemical field (largely because of the chemical's lack of visual interest). But it has caused some specialties people to start thinking about the possibility of setting up a new product clearing-house of their own.



QUIZ PERIOD: A panel of experts questions Gibson about Rustoff.

Drinking vinegar

for 5 years

**hasn't
soured**

U. S. Uscolite pipe

A plant in Louisiana uses U. S. USCOLITE® plastic pipe to carry vinegar from processing to storage vats, and from storage vats to pasteurizer and then to bottler. Previously, metal pipe had been used, and averaged 2 years' service life. But USCOLITE has been in use steadily for over 5 years and shows not the slightest sign of corrosion or wear...gives every sign of lasting indefinitely. It imparts no odor, taste, discoloration or contamination. USCOLITE gives full flow at all times—never clogs up.

USCOLITE pipe is tough—has extremely high impact strength. USCOLITE pipe, fittings, flanges, valves (Hills-

McCanna) come in the broadest and largest line of stock sizes on the market.

Look to USCOLITE pipe whenever corrosion is a problem. USCOLITE is doing great work in chemical processing plants, paper mills, food processing plants—to name but a few industries. Extremely tough but light in weight, it can be easily threaded and installed with conventional tools. For replacements or a completely new pipe installation, get in touch with any of the 27 "U. S." District Sales Offices or write us at Rockefeller Center, New York 20, N. Y.



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- ☐ CUPRIC CHLORIDE
- ☐ CUPRIC OXIDE
- ☐ MANGANESE SULFATE
- ☐ MONOHYDRATE MANGANESE SULFATE
- ☐ MANGANESE OXIDE
- ☐ MANGANESE CARBONATE
- ☐ FERRIC SULFATE
- ☐ SULFUR DIOXIDE
- ☐ MONOHYDRATED ZINC SULFATE
- ☐ CHLOROSULFONIC ACID
- ☐ ORGANIC SULFONIC ACIDS (AND DERIVATIVES)

SPECIALTIES

EXPANSION

Foundry Firm: Foundry Chemical Corp. has been formed in Milwaukee, Wis., to manufacture and sell products for use in casting metals.

Foreign Angle: Glidden Co.'s foreign business formerly handled by Atlantic, White Sea & Baltic Co. (Jacksonville, Fla.) is now handled by Glidden International C. A.

Products involved in the switch are principally naval stores.

PRODUCTS


Sticky Pen: A fountain-pen-like polyethylene glue dispenser is being introduced in this country by the Poppet Corp. (North Bergen, N. J.). Designed to release a dot of rubber cement, the new unit (\$1) holds enough to make some 5,000 of the dots, then can be refilled with a throwaway ampule (10¢ each).

Hot Jelly: Hibbil, Inc. (Stonington, Conn.) has a new product for lighting charcoal, wood or briquets. Packed in a tube, and squeezed onto the fuel, it is said to contain no gasoline or kerosene, and to resist backflash. Tube to light 25 fires costs 89¢.

Gleam Keeper: Du Pont is now offering help in formulating a novel product for keeping silverware shiny. An aerosol recipe, the compound is based on Du Pont's Elvalan vinyl polymer. Pressure-packaged, it can be sprayed on silver to form a tough, pliable, transparent film. Before the utensils are used for eating, the film can be removed in mildly alkaline detergent or soap solutions (otherwise, the film resists water). Freon-11 and Freon-12 are suggested as propellant gases.

Gear Special: Micu-Moly is a new gear lubricant devised by the Goode-now Co. (Oklahoma City, Okla.). A formulation of vermiculite and molybdenum carried in 10w30 motor oil, the new lube can be added to regular gear oil in the ratio of 1 to 10.

High-flying Kit: The Air Transport Assn. is now suggesting to women first-time air travelers that they assemble a lightweight cosmetic kit. ATA outlines the needs for makeup, nourishing and cleansing creams, de-



CH_3COOH

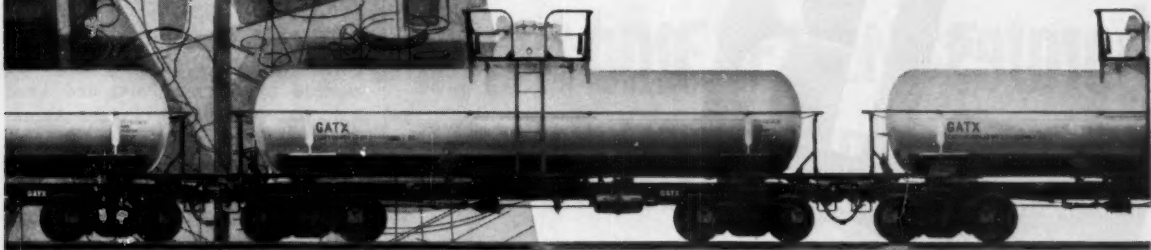
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features of GATX aluminum tank cars*

Flued Dome Construction** • All-Welded Tank, Jacket and Underframe Corner Posts and Girth Bands Riveted to Underframe • Safety Dome Platform (Available) • Insulation (Available) • One-Piece Longitudinal Bottom Plate • *All features standard unless otherwise indicated.

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100 Park Ave., New York 17

SPECIALTIES

pilatory, deodorant, shampoo, and hair creams—and points out that collapsible tubes make handy packages. A ready-to-go kit might have a market to travel-minded women.

Built to Bond: A pair of new adhesives for industry:

- Labelgrip, to glue labels, to all types of plastics—vinyl, polyethylene, styrene, etc. Adhesive Products Corp. (New York) sells it.

- Polyseam, for gluing polyurethane foam, is now marketed by Anchor Adhesives Corp. (New York). It has workable tack time of three to ten minutes.

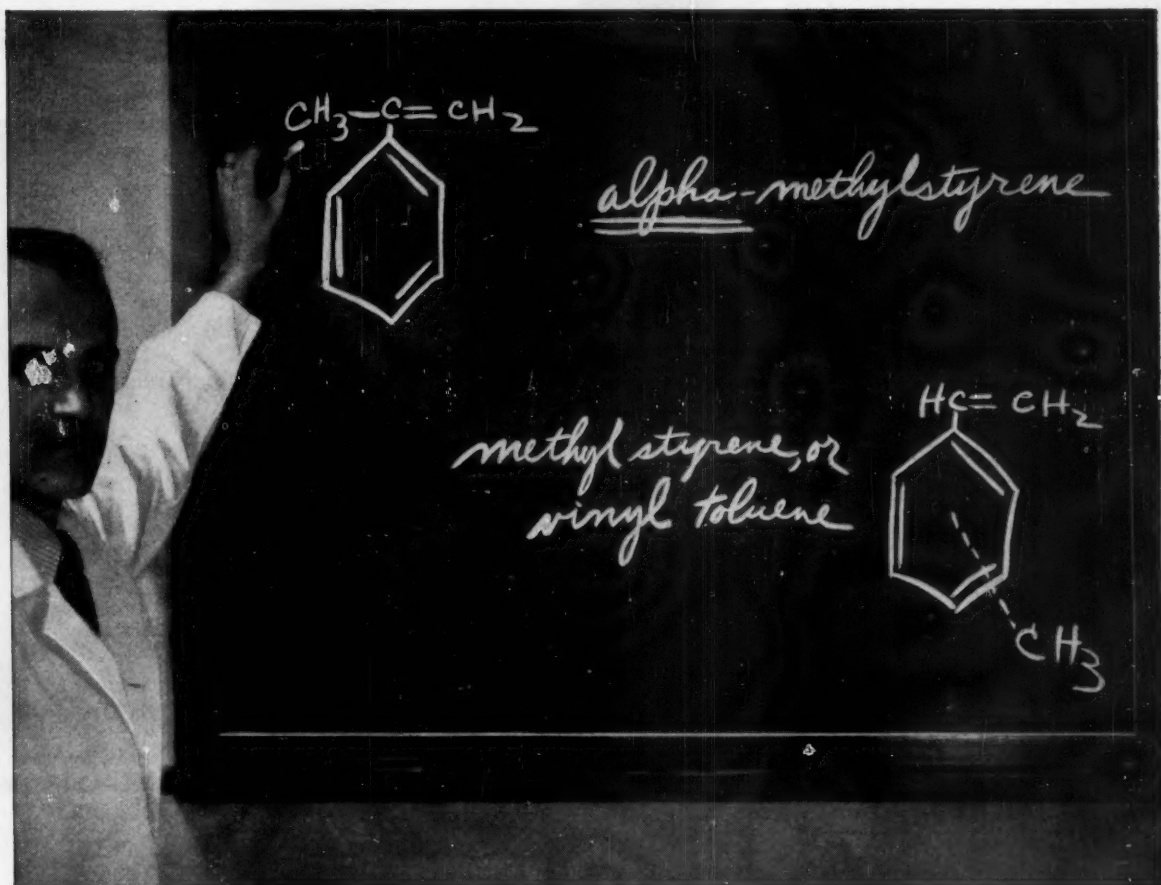
New Plasticizers: Ohio-Apex Division, Food Machinery & Chemical Corp. (Nitro, W. Va.), is now selling the plasticizer, di-isodecyl phthalate. Claimed to be a permanent plasticizer for vinyl, it has much lower volatility than many other widely used plasticizers, the firm says.

- Barrett Division, Allied Chemical & Dye Corp. (New York), has gone into volume production of Elastex 20-A plasticizer for vinyls. Consisting of di-isodecyl adipate, it is said to give good low-temperature performance, still have good resistance to heat degradation.

Sparkling Caulk: Rolled aluminum flakes go into a new calking compound devised by Overall Paint and Lead Co., Inc. (Cleveland). Tagged Aluminum Rubbertex, the compound is suggested for use with aluminum doors and windows, is said to give a moisture- and air-proof bond. It also gives good expansion and contraction protection, will not dry out and harden.

Phenolic Coater: Rexclad is a new enamel developed for spray-coating molded phenolic products. Rexton Finishes, Inc. (Irvington, N. J.) makes the new material, said to give a hard, chip-resistant finish with high adhesion. Various glosses are offered in most colors (including metallics).

Stain Chaser: For removing grease and oil-base stains from wall paper, Inwood Products Co. (New York) has marketed Kleen-Wall. Packed in a collapsible tube, the compound is dabbed onto the wall, allowed to dry. It then can be brushed off. Tube retails for \$1.69.



CAN ALPHA'S DIFFERENCE MAKE A DIFFERENCE FOR YOU?

New monomer now available for evaluation

Now produced commercially by Hercules at its new oxychemicals plant at Gibbstown, New Jersey, *alpha*-methylstyrene provides a challenge to chemists who are looking for a lower priced material with many of styrene's advantages plus numerous unique properties of its own.

Hercules *alpha*-methylstyrene is an unsaturated hydrocarbon, derived from propylene and benzene, that boils at about 165°C. It copolymerizes with other monomers such as styrene, butadiene, divinylbenzene, and

acrylonitrile. *Alpha*-methylstyrene does not polymerize alone readily by a free radical mechanism. This results in increased storage stability.

It can, however, serve as a reaction modifier when used as a partial replacement for styrene in many of the latter's uses. Such uses include GR-S rubber, styrene-butadiene latices, styrenated drying oils,

styrenated alkyds, and polyesters.

Low molecular weight polymers of *alpha*-methylstyrene have been found useful as low-cost plasticizers for such items as hot-melt resins and wire coating.

Hercules will be glad to send you a generous sample for testing, and subsequently to cooperate with you in working on specific applications.

Oxychemicals Division, Naval Stores Department
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MP55-3

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Extract?*

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In addition, we have developed excellent synergized pyrethrum concentrates, dusts and powders. If your insecticidal sprays, dusts or aerosols include the use of pyrethrum in any form, or the use of its companion product allethrin, write for the latest authoritative data. We also have available recent information concerning the most effective synergists, MGK 264 and piperonyl butoxide.



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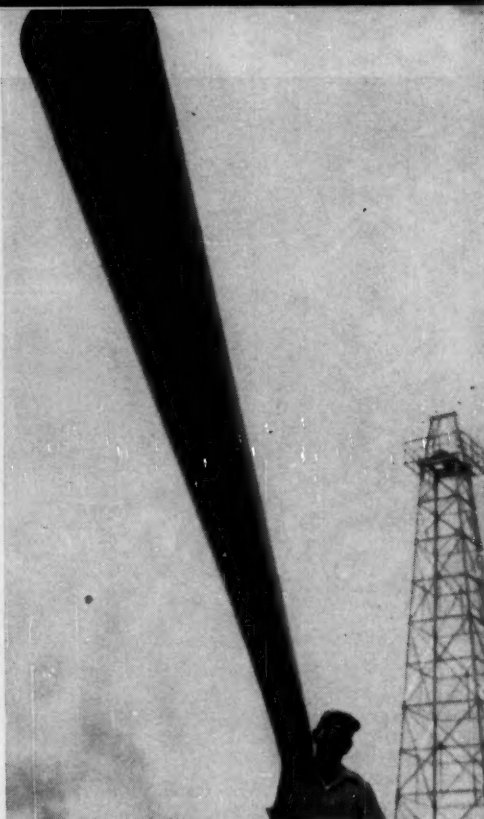
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MARKETS



LIGHTWEIGHT: Potent plastic pipe advantage . . .

OTHER SELLING POINT

Plastic Pipes Aim Higher

Pipe making will probably take less than 2% of all the plastics to be produced this year, but even that's a hefty near-70-million-lbs. bonanza to resin producers.

Polyethylene is still tops in the pipe field, but others (polyvinyl chloride, butyrate, acrylo-styrene) are important, too.

Few will disagree that plastics, on the whole, constitute the fastest-growing segment of the high-stepping chemical industry. And pipe—though still relatively low in the scale of plastic outlets—is contributing to the acceleration.

For instance, note this progression of plastic materials consumption in pipe: five years ago the total amounted to about 5 million lbs.; during '54 such use hit an estimated 35 million; and, in the year just ending, some trade experts insist that consumption will check out near 50 million lbs.—an impressive 10-fold increase over 1950.

The future, too, is rosy. During the next twelve months, pipe is expected to take 65-70 million lbs. of plastics, and, within two to three years later, be consuming as much as 100 million.

A considerable portion of that growth, of course, can and will be attributed to polyethylene. The material, generally conceded to be the first of the plastics likely to achieve a billion-pounds/year consumption rate (in all uses), pioneered* the rapid invasion of markets previously thought suitable only for the more conventional steel, cast iron, and concrete.

On the Way Up: But some of the relative newcomers in the plastic pipe field appear to be stirring up an intra-industry scramble for outlets, nipping into uses held not too long ago almost exclusively by polyethylene.

Latest to make a bid for a share in the oil field end of the burgeoning plastic pipe business is U.S. Steel's

* Used in mine drainage systems as a substitute for hard-to-get metal pipe during World War II.



and chemical-resistance; ease of laying.

(National Tube Division) polyvinyl chloride pipe. First such application of the product, made late last month, was a flow line (*see cut*) laid at a new oil producer of TXL Oil Corp. near Odessa, Tex.

The PVC installation underlined one of plastics' chief advantages over other pipe media—the comparative simplicity of putting the pipe into the ground. The crew laid 2,800 ft. of 2-in. plain-end PVC pipe in less than an hour and 45 minutes, coupling 90 lengths at a rate of almost a joint a minute. (Fittings were attached by means of solvent cementing.)

National's PVC was introduced only a few months ago and, according to the manufacturer, "is already proving its mettle" in general industrial applications (e.g., carrying chemicals).

Currently, perhaps not more than 2 million lbs. of rigid polyvinyl chloride is being converted into pipes, but by the end of this year the take is expected to jump to over 4 million (*see end-use pattern*), owing to inroads into newer pipe areas.

Another pipe material rapidly climbing into the big time is Naugatuck Chemical Division's (U.S. Rubber) Kralastic, a tough corrosion-

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Dichloroacetic Acid, a strong organic acid, undergoes the normal reactions of such acids. The two chlorine atoms offer many substitutive possibilities. For additional reactivity of the carboxyl group, the acid chloride, currently under development by Kay-Fries, should be of interest. To manufacturers of drugs, dyes, and general organic chemicals, these products offer many possibilities in synthesis.

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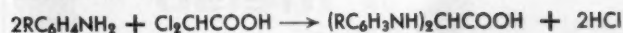
KAY-FRIES SPECIFICATIONS

(Tentative)

purity: 98% min.

m. p.: 10.5° C. min.

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phenyl)-acetic acids

(In this reaction di-subst.-anilinoacetic acids may also be obtained.)



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diphenoxyacetic acid



sodium alcoholate

dialkoxyacetic acid

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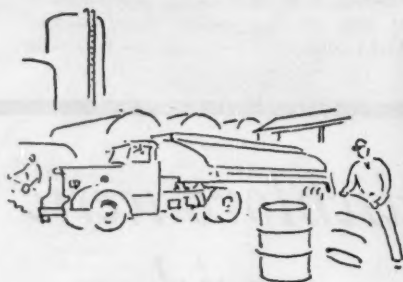
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MARKETS

resistant blend of plastic and rubber described as an acrylonitrile-styrene copolymer. Naugatuck has never officially revealed how much Kralastic is being produced at its Baton Rouge, La., plant, but estimates indicate that the material's growth curve is definitely tilted upward.

This year, for example, as much as 9 million lbs. of the acrylo-styrene production may go into pipe uses. That's a hefty hike over last year's 5-6 million, and almost nine times as much as was consumed as recently as '53.

Pipe fabrication, too, will continue to be a good customer for cellulose acetate butyrate. During 1951, prime producer Eastman Chemicals (Kingsport, Tenn.) turned out some 1.5 million lbs. of the plastic (under its Tenite label) for piping. The '55 rate for such uses: an estimated 5-6 million lbs. Actually, butyrate consumption in pipe may be leveling out some, but it will account for perhaps 10% of all pipe plastics use this year.

Other items—reinforced polyesters, epoxies, fluorocarbons—now being consumed in pipe manufacture to the tune of 1-1.5 million lbs./year, are expected to grow, though moderately. A good '56 lumping would probably be 2 million lbs.

Despite the bouncing growth of these newer plastics, polyethylene—currently hitting a clip of about 38 million lbs./year in pipe—is tabbed to remain in top spot for some time to come. Reinforcing such optimism is this year's anticipated 20% increase over '55.

The old-timer will likely continue to dominate the so-called "cold water" plastic outlets, where high temperatures and pressure are no significant problems. These include irrigation of farms, drainage pipes in mines and, to a wide extent, private water systems.

The oil field market, however, is the prime target in the sights of most of the other resin makers. For it's here, in the transportation of sour crude oil and unwanted oil-field salt water (pumped to the surface with the oil), that plastic pipes took their first great stride toward maturity (*CW*, Nov. 6, '54, p. 78).

Both Naugatuck's Kralastic and Eastman's Tenite have been installed in several multimile cross-country lines for transporting crude oil from producing fields; and National Tube is betting heavily that its rigid vinyl

will also be an important oil field addition.

Until now the vinyl pipe's chemical resistance and good strength have sponsored steady growth in chemical plant use and in other industrial outlets.

Areas in which the various plastic materials may well clash (omitting, of course, polyethylene's cold water bailiwick) include oil, salt-water disposal, natural gas transmission, chemical carrying and, for the acrylostyrene product particularly, piping of potable water.

**1956 plastic pipe market
splits up like this:**

(millions of lbs.)

Polyethylene	45*
Kralastic	8.9
Butyrate	6.7
Rigid PVC	4.5
Other (reinforced polyesters, epoxies, fluorocarbons, etc.)	2

*30 million lbs. of virgin polyethylene;
about 15 million lbs. of scrap.

Reason for assigning the No. 1 spot to polyethylene is basic economics. With a dozen or more U.S. companies expected to be producing polyethylene resin within the next year or two, prices will doubtlessly be pressured to much lower levels. More than one pipe fabricator is convinced that polyethylene will soon be about the least expensive material available out of which to make pipe.

But the onrush of competitive products could have a later adverse effect on polyethylene use. Fact is, some fabricators are even now bemoaning the cut in polyethylene pipe profits.

On the whole, however, nonmetal pipe advances, significant as they have been (the business is considerably under \$50 million/year), will have to step up fantastically to come anywhere near matching, say, steel's over-a-billion-dollar market.

On the other hand, plastics will continue to find a broadening niche where pipe applications call for such special needs as noncorrodibility, minimal solid deposit collection, flexibility to eliminate some fittings, low turbulence and friction losses and ease of joining lengths.

And it's on these characteristics that most resin makers pin their hopes that pipe will prop over-all plastics sales.

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MARKETS

Paper Profit

Dominion demand for scores of chemicals increased in 1955 as a result of Canada's record pulp and paper production. The high pulp output of 10.4 million tons—up 500,000 from '54—was due largely to a 1.0% boost in newsprint (to 6.2 million tons); yet this peak output was far from adequate, and further increases will make new demands on many chemicals.

Chemicals that reflect the rapid growth of Canadian pulp and paper production run to several score, but among the more important in pulpmaking are (tons, 1954): sulfur, 268,500; lime, 207,400; chlorine, 89,600; caustic soda, 87,600; sulfur dioxide, 38,600.

Used in papermaking in 1954: alum, 51,200 tons; kerosene, 356,500 gal.; chlorine, 2,100 tons; sulfuric acid, 4,300 tons.



Tire Rider

ILLUSTRATIVE of new chemical markets that often develop as by-products of mainline projects is this printing roller.

An offshoot of automobile tire research, the Extron roller's outstanding property is high wear resistance.

Other characteristics: solvent (except for glycols and alcohols) resistance equivalent to Buna N compounds; three times the tensile strength of rubber; nonmelt-able up to 300 F; virtually transparent color.

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Dependable Source for Chemical Raw Materials



Discussing Dover's expansion plans are, left to right: Samuel R. Thrush, plant manager; Eric R. Beu, chief process engineer; and Robert S. Cohen, president.

"Wyandotte is one of the most customer-conscious suppliers we have dealt with"

—Robert S. Cohen, president, Dover Chemical Corporation, Dover, Ohio

The Dover Chemical Corporation started out in 1949 manufacturing one grade of chlorinated paraffin. Today it is an important producer of chlorinated paraffins, with eight grades varying in chlorine content from 30 to 70 per cent.

Dover's chlorinated paraffins find their way into many industries. They are used in the manufacture of cutting oils, as additives for lubricants, as flame-proofing components in paints and polyester resins, and as co-plasticizers in vinyl resins—to name just a few.

Other products which have been added recently include ortho-dichlorobenzene, used as a solvent in engine-cleaning compounds and in sewage treatment, and para-dichlorobenzene for use in moth balls and deodorants.

In order to better serve these varied markets, Dover looks to companies like Wyandotte for technical assistance. In the words of Robert S. Cohen,

Dover's energetic president: "Wyandotte's service and technical advice have been very valuable to us. At the present time, we are engaged in an expansion which will add several entirely different products to our line, and based on past performance, we know we can depend on Wyandotte's representative to get technical service to us promptly when we need it.

"When we order Wyandotte Chlorine, we can be sure that it will be delivered on time. Delivery is so dependable that we have come to take it for granted."

Are you looking for a reliable source for chemical raw materials... a source with a background of years of experience in many industries?

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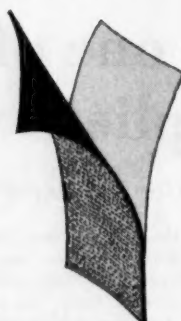
By: T. R. Moorer, Sales Manager, Bag Division, Fulton Bag & Cotton Mills, Atlanta, Georgia



Protecting costly chemicals from moisture, whether in transit or in storage, is only part of the problem. An equally important factor is to do so at the lowest possible cost.



Old-fashioned methods required expensive, heavy, rigid containers to keep moisture in its place. This also added to transportation cost and required extra warehouse space. Fulton WPPL bags have provided the answer.



Today, more and more firms give their chemical products complete, low-cost protection with Fulton WPPL bags. These are made of economical burlap or cotton laminated to paper or polyethylene.† WPPL bags have effected tremendous savings in many industries and should be able to do the same for you.



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Market Newsletter

CHEMICAL WEEK
January 14, 1956

The rumble of new-year price changing may have abated a bit (since many items did pivot on Jan. 1), but some revisions continue to pop out here and there.

Take potassium chloride, for example. On Feb. 1, most users of the chemical-grade (refined) material will be paying about a dollar a ton more for their needs. The modest increase, first since mid-'51, will apply to spot and to some contract purchases.

The new price, \$28/ton in bulk, was initiated by International Minerals & Chemical, and other producers will match that company's f.o.b. Carlsbad, N. M., pricing basis.

Reason behind the boost is a now-familiar plaint—rising manufacturing costs (labor, equipment, etc.).

The same chant, accumulated increases in cost of manufacturing, is being sung to titanium dioxide users by way of explaining higher producers' schedules. New postings will add from $\frac{3}{8}$ ¢/lb. to as much as 2¢/lb. to prices of various grades of the dioxide. The increases, incidentally, are the first since Sept. '53.

Despite additional material hitting the market (*CW Market Newsletter*, Dec. 17, '55) makers are, for the most part, still holding regular titanium dioxide customers to allocation levels based on past use—a solid indication of the continuing hot demand for the paint material.

•
It should be fairly well established by now that nickel is short, but out of Washington comes word that another study is being made.

This one, to be conducted for the Office of Defense Mobilization, will take a look at stockpiling, military and atomic program set-asides, and expansion plans to ease the long-time tight situation.

Handling the chore is John Townsend, director of Materials and Standards Engineering for Western Electric's subsidiary, Sandia Corp.

With a Washington dateline, too, is news that there may be a change in support price regulations to promote U.S. castor oil production. U.S. Dept. of Agriculture researchers have found that the present regulations tend to overpay farmers for beans with low oil content, underpay them for desirable high-oil beans.

If the change is made, it could contribute some to easing of the current farm plight (*CW*, Aug. 27, '55, p. 71).

•
New plastic outlets keep sprouting on all sides. And now it's plastic telephone poles that, says one marker, "will become a reality in '56, and someday commonplace." Made of glass-reinforced resin, the laminated, hollow pole weighs only about 125 lbs., promises many advantages to offset a relatively high initial cost.

•
Back in the paint field, Colton Chemical's cut in polyvinyl acetate copolymer emulsion, reported last week, applies only to the company's Vinac Flexbond 800, not to other emulsions.

Heartening paint industry demand necessitated allocating additional production facilities for the material, but the price adjustment reflects a lower solids content, brings Colton's product in line with competitive copolymer emulsions of this type.

Market Newsletter

(Continued)

Competition is keen in the monomer field, too. Last week, Carbide and Carbon's president, Harry McClure, mentioned that a new vinyl esters unit at the firm's Niagara Falls plant will go onstream early next month, turn out tank-car quantities of vinyl butyrate, vinyl 2-ethylhexoate, as well as vinyl propionate.

In a matter of hours, Celanese made it known that vinyl propionate (available in tank-car quantities) was being added to its vinyl monomer line. Celanese's delivered l.c.l. drum tag: 50¢/lb.

Carbide's upcoming tank-car prices on the three esters read like this: the propionate, 47¢/lb., delivered; vinyl butyrate, 50¢/lb., f.o.b. Niagara Falls; and the 2-ethylhexoate, 55¢/lb., same f.o.b. basis.

Dimethyl silicone oils and emulsions will cost less, and if the hopes of Carbide's Silicones Division are fulfilled, the price cuts will "stimulate further exploration" of the market potential of the versatile items. Current uses include auto and furniture polishes, cosmetics, release agents for molding tires and other rubber goods, in shell-molding process, ad infinitum.

Just about all rubber-grade styrene users are now paying 1/2¢/lb. less—16 1/2¢/lb. tank (f.o.b. buyers' destination) as initiated by Koppers at the turn of the year.

In addition to the styrene emulsion, Dow also reduced its vinyltoluene by a like amount on all quantities. Cuts represent the second in less than three months on both items.

Fast-breaking surprise to the vinyl plastics industry is Bakelite's sudden slashing of its resin prices this week. Cuts will range from 8.5 to 13% depending on type.

Polyvinyl chloride type of resins (typical is the company's VYNW) will drop from a previous 31¢/lb. to 27¢., while the vinyl chloride-acetate copolymer (VYHH) is down 3¢/lb. to a new 32¢ level.

Many other vinyl resin compounds will also be reduced comparably, promises Bakelite's president, George Miller.

The competition hasn't yet had time to study the changes, but it's more than likely that the vinyl resin pioneer's lower prices will again set the industry standard as they did last summer (*CW Market Newsletter*, July 9, '55).

SELECTED CHEMICAL MARKET PRICE CHANGES—Week Ending January 9, 1956

UP

	Change	New Price
Lead carbonate, white, basic, bgs., c.l.	\$ 0.01	\$ 0.19
Lead silicate, 45x, bgs., c.l.	0.0075	0.17
Litharge, comml., powd., bbls., c.l., wks.	0.005	0.18
Lithopone, ord., bgs. c.l., dlvd.	0.005	0.08
Red lead, 95%, bbls., c.l., wks.	0.005	0.19
Titanium dioxide:		
Anatase, bgs., c.l., dlvd.	0.02	0.245
Rutile, bgs., c.l., dlvd. E.	0.02	0.265

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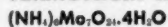
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AMMONIUM MOLYBDATE, REAGENT

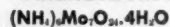


F.W. 1235.95

Meets A.C.S. Specifications

Assay (as MoO_3)	81.0-83.0%
Insoluble Matter	0.005 % Max.
Chloride (Cl)	0.001 % Max.
Nitrate (NO_3)	0.003 % Max.
Phosphate (PO_4)	0.0005 % Max.
Sulfate (SO_4)	0.005 % Max.
Heavy Metals (as Pb)	0.001 % Max.
Magnesium and Allied Cations	0.020 % Max.
pH of 5% Solution at 25°C	5.0-5.5
Particle Size (Mesh): at least 95% thru U.S. No. 20 Sieve	
at least 90% on U.S. No. 140 Sieve	

AMMONIUM MOLYBDATE, C.P.



F.W. 1235.95

Assay (as MoO_3)	81.0-83.0%
Insoluble Matter	0.010 % Max.
Chloride (Cl)	0.005 % Max.
Nitrate (NO_3)	0.010 % Max.
Phosphate (PO_4)	0.001 % Max.
Sulfate (SO_4)	0.010 % Max.
Heavy Metals (as Pb)	0.003 % Max.
pH of 5% Solution at 25°C	5.0-5.5
Particle Size (Mesh): at least 95% thru U.S. No. 20 Sieve	
at least 90% on U.S. No. 140 Sieve	

SODIUM MOLYBDATE, TECH. ANHYD.



F.W. 205.93

Assay (Na_2MoO_4)	98.0 % Min.
Insoluble Matter	0.050% Max.
Chloride (Cl)	0.20 % Max.
Sulfate (SO_4)	0.20 % Max.
pH of 5% Solution at 25°C	9.0-10.0

MOLYBDIC ACID, REAGENT

Meets A.C.S. Specifications

Assay (as MoO_3)	85.0 % Min.
Insoluble in NH_4OH	0.010 % Max.
Chloride (Cl)	0.002 % Max.
Phosphate (PO_4)	0.0005% Max.
Sulfate (SO_4)	0.020 % Max.
Heavy Metals (as Pb)	0.003 % Max.
Particle Size (Mesh): at least 97% thru U.S. No. 40 Sieve	
at least 10% thru U.S. No. 325 Sieve	

MOLYBDENUM TRIOXIDE, REAGENT



F.W. 143.95

Meets A.C.S. Specifications

Assay (MoO_3)	99.5 % Min.
Insoluble in NH_4OH	0.005 % Max.
Chloride (Cl)	0.002 % Max.
Nitrate (NO_3)	0.003 % Max.
Phosphate (PO_4)	0.0005% Max.
Sulfate (SO_4)	0.020 % Max.
Ammonium (NH_4)	0.001 % Max.
Heavy Metals (as Pb)	0.005 % Max.
Particle Size (Mesh): at least 90% thru U.S. No. 40 Sieve	
at least 10% thru U.S. No. 325 Sieve	

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Molybdenum compounds are widely used in the production of catalysts, phosphomolybdic-phosphotungstic lake colors, molybdate chrome orange pigments, protective and decorative metal finishes, soil additives, and pure molybdenum metal for radio tubes, X-ray tubes, and incandescent lamps. They have specific uses in pharmaceutical, leather and textile manufacture.

In addition to the above mentioned Molybdenum Chemicals, Baker now supplies Cobalt, Nickel, and Lead Molybdate.

Technical product data, samples, and prices will gladly be forwarded upon request.

Address your letter to J. T. Baker Chemical Co., Executive Offices, Phillipsburg, New Jersey.



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Out of Confusion: Order

Standardized international labels for dangerous chemicals may yet become a reality. Important progress in this now confused area is reported by James Walker, chairman of the Manufacturing Chemists' Assn.'s Labels and Precautionary Information Committee.

Walker, who works for Hooker Electrochemical Co., and Robert Minteer, of Monsanto, are currently compiling their reports on recent joint meetings in Geneva with representatives of the Assn. of British Chemical Manufacturers and the Chemical Industries Committee of the International Labour Office.

Object of these meetings was to resolve differences among the labeling plans promulgated by each of the three organizations.* And though the sessions were characterized as strictly informal, involving no commitments, the representatives reached common ground on these major points:

- Agreement that a uniform system of symbolic labeling is highly desirable.
- Indications that the organizations would compromise individual plans for the sake of standardization.
- Skeletal program for submitting separate proposals, with agreement-

*Speaking for ABCM: Charles Stevens, Fredrick Walmsley; for ILO: Marcel Robert, John Lareaux.



MINTEER: Cooperation was excellent; all contributed constructively.

reaching meetings to be held later, probably in 1956 or 1957.

Each group's plans follow similar patterns, differing in scope and degree. ABCM and MCA plans are closer to each other in most respects than either is to the younger ILO proposals. This stems largely from close, long-standing intercountry chemical trade relations between Britain and the U.S.

Resolution of the differences will require mainly sound definitions of purpose and more comprehensive treatment of technicalities. For example, neither the British plan nor the ILO system defines, even arbitrarily, classes or severity of hazards.

On the other hand, the ABCM program is quite thorough on its statements regarding the layout and design of labels and stickers. Precise measurements for setting up a new label are fully manualized and provide for easy visual identification of dangerous substance markers. This is highly desirable in any such program.

Another need is a spelled-out philosophy. MCA's manual covers all phases of chemical handling, including anticipated uses by operating employees, while the ABCM manual covers labeling only up to and including opening the container at the destination.

Other differences among the plans include the treatment and disposition of empty containers (spelled out in at least one plan); recognition of dangers involved in putting oxidizing materials in close proximity to flammables (a feature included in the American system, but not in all the others). These problems, however, are considered readily solvable.

Among items yet to be discussed are shipping and transshipping of hazardous materials through countries other than the origination or destination countries. In all probability, manufacturers will provide supplementary labels for the protection of shippers and transport workers in those areas.

At present there remains some question on the use of colored labels in international transport. Although color is an easy means of identification, there are those in the field who



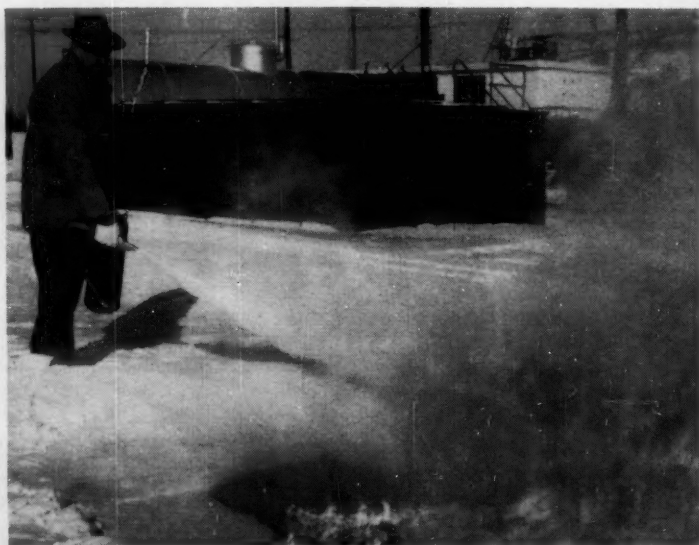
WALKER: After Geneva trip, he reports progress in labeling uniformity.

feel that the physical drawback of fast-fading colors often used on such short-life materials may render such labels useless, or at least confusing.

Another aspect evolves from the fact that the United Nations, of which ILO is an official part, is also working on the matter of labeling. ILO itself has done considerable work in the field, but its material is not quite so comprehensive as that of the British and the Americans. First on ILO's agenda, therefore, is agreement with the UN committee on recommendations to be made at its next meeting with ABCM and MCA.

Complicating factors also arise from the number of groups involved and the diversity of interests. Besides MCA, ABCM, ILO and the UN, the International Air Transport Assn. and the International Convention for Transportation of Goods by Rail each has a labeling system designed for its particular needs, each is interested in the program's development.

Nevertheless, each group has contributed constructively to standardization, say Walker and Minteer. Cooperation, they continue, was excellent at the joint meetings and all participants were anxious to achieve goals of mutual benefit.



Salesmen Spray Goodwill

NOT MANY chemical salesmen get to use their own products, but at Ansul Chemical Co. (Marinette, Wis.) special pains are taken to recognize salesmen who use the company's dry-chemical extinguishers on emergency fires (*above*). Recognition is membership in a club: SWPOAF (Salesmen Who Put Out Actual Fires), with attendant pins and cards (*below*).

Open to any authorized seller of Ansul products, the club has spread goodwill since 1946. Its 76 members have put out 99 fires, ranging from a multimillion-dollar blaze in

Venezuela to more common auto fires.

The club can point to substantial results from its efforts. Example: two salesmen were demonstrating for some railroad officials when a diesel started belching smoke and flame. The officials gave the nod, and the Ansul men put out the fire, thereby reaping a sizable order—and appreciation.

Says the company, the club has been responsible for considerable goodwill. And, it adds, it's a rare salesman who doesn't follow up with a business call.

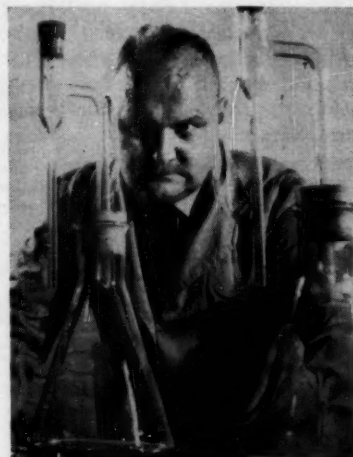


Shuffle at Summit

Tooling up for 1956 sales, Ciba Pharmaceutical Products, Inc. (Summit, N.J.) is forming one new major sales division and three new sales districts. Also new: the post of director of trade relations.

The new Middle Atlantic division will supplement four others (Eastern, Southern, Central and Western), will include seven states. Cleveland, Houston, and New York-Connecticut are the areas getting new sales districts.

By the move, the company expects to better its control and supervision of selling efforts in the reorganized territories. Sales growth, a spokesman declared, has necessitated the shuffle. And, it's a good bet that Ciba will be boosting its sales drive in the new sections.



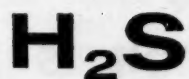
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Closer to Home

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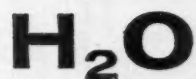
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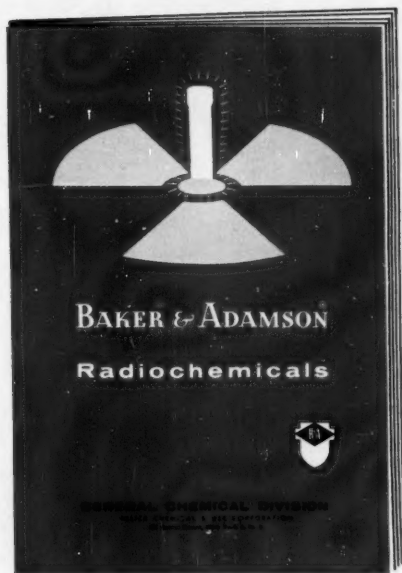
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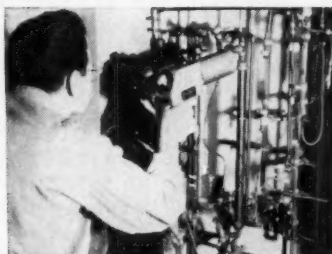
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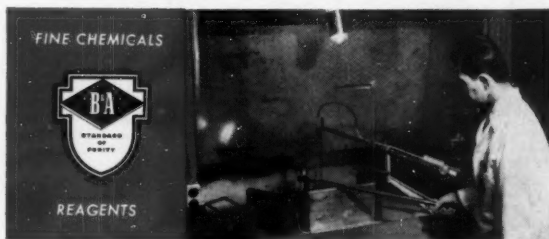
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